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DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

★CARS★ SHOP EQUIPMENT TRUCKS ★★AVIATION★★ PARTS ACCESSORIES ★TIRES★

Vol. 10. No. 1235 | Entered as second class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879 | NEW YORK, FRIDAY, JUNE 20, 1930 | 10 Cents. $12 Per Year

TARIFF BILL BRINGING REPRISALS

Car Sales in New York Metropolitan District And N. J. Top Year Ago

May Registrations of New Vehicles Set Up Gains Over 1929, Establishing New High Record for the Month

NEW YORK, June 19.—Running beyond the fondest expectations of the trade, new passenger car sales in the New York city metropolitan area and in the entire state of New Jersey in the month of May were actually greater than in May, 1929, thus establishing new high sales records for the month for all time.

Not only did the metropolitan district new car registrations in May top a year ago, but they were the second highest for any month in the history of the industry, being exceeded only by April, 1929, when the sales were phenomenal.

In compiling new car sales in the metropolitan district for Lee J. Eastman, president of the Automobile Merchants' Association of New York, John F. Sherlock, automobile market analyst of Sherlock & Arnold, today revealed that May new car sales were 20,141, as compared with 19,909 in the corresponding month of 1929, a gain of 232 units, equal to slightly more than 1 per cent.

The most significant feature of Mr. Sherlock's report is the fact that the increase for the entire month was all accounted for in the final week of the month, indicating that a revival in buying has actually started in the New York territory, where a decline in sales was first felt last year. The New Jersey returns, showing increased sales in May over last year indicate that this revival has already spread to that state, and that undoubtedly it will continue to spread throughout the country.

Mr. Sherlock points out that the May sales in the metropolitan district were only 5 per cent. below April, 1929, the record month in history, and another highly significant fact that May, 1930, sales were 14.2 per cent. higher than in the preceding month, indicating in New

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ANDERSON OBTAINS NEW SPRING COVER CONTRACTS

Cambridge, Mass., June 19.—A suit has been filed for patent infringement against the Briggs & Stratton Company of Milwaukee, in the District Court of the United States in the eastern district of Michigan, the suit being titled Ajax vs. Briggs & Stratton.

During the month of May, the Anderson Manufacturing Company of this city, makers of Anderson-Ajax steel spring covers, has obtained contracts from four of the country's largest car manufacturers who are now using steel spring covers as standard equipment. These steel spring covers are now used as regular equipment by ten of the leading cars on twenty-four models and on more than 150 body types.

CANADIAN AUTOMOTIVE EXPORTS OFF IN MAY

Montreal, June 19.—Canada's exports of automobiles and parts for May, $1,520,276, compared with $4,442,906 in May, 1929, official figures issued by the Department of Public Revenue revealed today.

MURRAY CORP. ELECTS AVERY CHR. OF BOARD

Detroit, June 19.—C. W. Avery, president of Murray Corporation of America, has been elected chairman of the board, succeeding H. O. Barker, resigned.

Mr. Avery continues as president. Henry Shelden, Detroit, was elected a director, to succeed D. W. Gurnett, Boston, resigned.

FIRESTONE EXPANDS LOS ANGELES PLANT

Los Angeles, June 19.—With the second anniversary of building the first tire in the Western Firestone factory being celebrated by the Firestone Tire and Rubber Company, work is nearing completion on the expanston program at the plant. The expansion to the plant brings the productive capacity to 15,000 tires and 17,500 tubes daily. There are 2,800 people on the pay roll, which aggregates $5,000,009 annually.

Raps Tariff

R. G MARTIN

New York, June 19.—As in the case of all other American industries interested in the manufacture of motor cars, we will be forced to take our capital and a portion of our man power to Europe if we are to meet foreign competition under the new tariff act, R. G. Martin, president of the Moto Meter Gauge and Equipment Corporation, stated yesterday upon his return from a six-week business trip through Germany, France and England.

"We feel that there is no longer a possibility of building accessories here and exporting them to other markets. Instead, we are, at the present time, making arrangements for financial and personal interest in the major companies building

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EMPLOYMENT HOLDS UP WELL IN AUTOMOTIVE INDUSTRY

Special from A. D. N. Washington Bureau

WASHINGTON, June 19.—Employment in the automotive and allied industries in the last thirty days appeared to be holding up well, in spite of many economic and seasonal factors, with indications that this month will witness a gratifying upward trend.

An analysis of reports from all of the principal automotive manufacturing centers of the country, as compiled by the United States employment service of the Labor Department, shows that the motor industry is holding its own in comparison with other major industries.

While the trend of production and employment in the automotive industry in Michigan did not show the seasonal increases expected in the last month, increased operations and gains in employment were reported in many plants, while others worked with reduced forces.

In Ohio the employment situation showed some improvement, several branches of the tire and rubber industry working full time, with additional workers engaged, while automobile body plants increased their forces.

Conditions in manufacturing plants in the Detroit industrial district were characterized as irregular, employment gains noted in some establishments being offset by

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AUTOMOTIVE PRODUCTS MADE TARGET IN FOREIGN ATTACKS

Boycotting of American Goods Urged in Many Good Export Markets; Motor Car Object of Retaliation

By FRANCIS P. DAILY

WASHINGTON, June 19.—Sharpshooting at the new Hawley-Smoot tariff bill has started in Europe and South America and the American automobile is proving a favorite target, according to press dispatches received here from all parts of the world.

Measures of reprisal are threatened in practically every country that is a good American export market, and the automobile, which has become the principal article of export from this country, is naturally the object of the attack in many countries.

Describing the Hawley-Smoot bill as "harmful to Spanish exportations," the Council of Ministers in Spain yesterday discussed the steps Spain will take to offset its effect.

The bill was met in Switzerland with unanimous opposition and some newspapers hailed the tariff as a challenge to an economic war between the United States and Europe. A meeting has been called for June 27, at which export authorities will discuss the measure.

Boycotting of American automobiles is being urged in Paris and an increase of tariff on American products at once is being advocated by Italian newspapers

The Belgian Cabinet discussed the bill but postponed action until it has conferred with other countries. From Havana, Cuba, came quotations from papers claiming the new measure will end the commercial amity between the United States and Cuba.

Measures of retaliation are being urged by newspapers in Argentina, Australia and in central Europe.

During the past year, France increased its duties on American and other foreign cars to practically 45 per cent., and Germany is now considering similar reprisals.

Australia has twice increased her automotive duties, the second time being an arbitrary increase by one-half.

At present passenger car duties imposed in foreign countries range from 7½ per cent. in Mexico to 51 per cent. in Italy, and 69 per cent. in Uruguay, while the average of all countries is about 30 per cent. ad valorem.

The average on trucks is slightly lower. Internal taxes and other burdens add to these figures in many countries.

It was pointed out today by ex-

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NORTH CAROLINA A. T. A. SESSION TO OPEN MONDAY

Asheville, N. C., June 19.—Officers and members of the American Automobile Association from several cities in the United States and Canada will remain in Asheville after the closing of their twenty-eighth national convention Saturday, in order to attend the state convention of the North Carolina Automotive Trade Association, which will convene Monday, June 23, for a session of two days.

Prominent dealers from all over the state will attend and the meeting is expected to be the most representative dealers gathering ever held in North Carolina. Problems to be discussed will include motor vehicle license laws, distribution, advertising for new and second-hand cars, salesmanship, production, agency directing, plans tending to increase the sales of parts, the management of repair departments and the benefits of radio, newspaper and sign board publicity. Practically all of the two days will be devoted to business conferences and lectures.

Several hundred members of the American Automobile Association are now in Asheville for their first Southern convention. Arrivals include President Thomas P. Henry of Detroit, W. G. Bryant of the Detroit AAA Club, W. T. Owen, general manager of the Miami, Fla., AAA Club; Ernest Smith, executive vice-president, and Charles P. Clarke, general manager.

Robert R. Reynolds of Asheville, executive vice-president of the Carolina Motor Club, hosts to the convention, has been named chairman of the entertainment committee. The convention will open Friday morning at 9.30 o'clock.

FOKKER STOCKHOLDERS APPROVE NAME CHANGE

New York, June 19.—Stockholders of the Fokker Aircraft Corporation yesterday approved the change in name to General Aviation Corporation and an increase in the capital from 1,000,000 to 5,000,000 shares of stock. Provision was also made to complete the acquisition of the Dornier Company of America.

U. S. ASBESTOS DIVISION WORKING AT CAPACITY

Bridgeport, Conn., June 19.—The United States asbestos division of Raybestos-Manhattan, Inc., is currently operating at full capacity. Division manufacturers molded asbestos brake linings and clutch facings in addition to other asbestos products.

C. I. T. CONTRACTS WITH STEWART-WARNER CO.

New York, June 19.—An exclusive contract has been signed by Commercial Investment Trust, Inc., of New York with Stewart-Warner Corporation of Chicago, whereby C. I. T. will act as the official financing organization for this manufacturer's dealers and distributors throughout the United States and Canada covering sales made on the installment plan.

The Stewart-Warner Company, radio manufacturer, has approximately 4,000 dealers and 150 distributors throughout the country which will be serviced by the C. I. T. network of 140 branch offices located in the United States and Canada.

Employment Holds Up Well In Automotive Industry

(Continued from Page 1)

declines in others. The automobile and accessory plants operated with reduced forces and in some instances on part-time schedules.

Except for plants manufacturing automobiles and automobile accessories, all industries in Flint worked close to normal schedules.

In Kalamazoo automobile and accessories factories worked with reduced forces, while foundries showed some improvement. Curtailed schedules prevailed in Lansing industrial plants, while in Pontiac part - time operations continued in the automobile industry. Some of the accessories factories in Jackson worked part time.

Industrial operations in Toledo were still restricted in the majority of the plants. Part-time operations continued in the automobile and automobile accessories factories. In Cincinnati several accessories plants employed about 400 additional men.

The unemployment situation in Akron showed a gradual improvement. The majority of the plants in the tire and rubber industry operated on a three eight-hour-shift daily basis, while several others worked two ten-hour shifts, with curtailed force engaged.

Following are condensed reports from other principal automotive manufacturing centers:—

NEW YORK

Plants manufacturing automobile accessories operated part time with reduced forces in most instances. Manufacturing activity and employment throughout the state continued somewhat irregular.

Buffalo—The automobile industry improved somewhat, and additional forces were employed. Production and employment in practically all of the major industries remained at approximately the same level as in the past several months.

Rochester — Manufacturing activity revealed little improvement. Several major industries worked part time, with reduced forces.

Yonkers industrial district—Plants manufacturing automobiles, machinery and wire showed no appreciable change.

PENNSYLVANIA

A further slight improvement in manufacturing activity and employment occurred in the last month in several major industries. Plants manufacturing automobile accessories continued on a normal basis.

Scranton—Employment conditions showed a marked improvement in the last 30 days.

Allentown—Industrial operations continued below normal, and part-time employment prevailed in practically all lines.

INDIANA

The industrial employment situation showed little change as compared with April. The automobile and accesory factories and assembling plants operated on curtailed schedules.

South Bend—Most of the major industries were in operation, mostly on a part-time basis.

WISCONSIN

While a surplus of labor continued an improvement in industrial employment conditions was noted in several cities. Curtailed schedules prevailed in the tire factories.

South Milwaukee — While full time prevailed in most of the local plants, others operated with curtailed forces.

Racine—While all plants were in operation, automobile and accessory factories, foundries, and a rubber factory worked part time.

Kenosha—Local plants operated part time in most instances, and the employment situation showed little change during May.

MISSOURI

Employment throughout the state increased, with the supply of labor equal to the demand. Normal employment was reported in the automobile-assembling plants and other leading industries.

St. Louis—The usual forces for this season were reported employed in automobile-assembling plants and iron and steel mills.

LISTS OF FLEET OWNERS
1,000 OWNING 100 OR MORE
17,000 OWNING 10 OR MORE
3,300 BUS FLEET OPERATORS
Showing in almost every case the names of the men who control or influence the automotive purchasing policies.
Separate lists for larger cities.
Fleet Owner List Co., 1817 B'way, N. Y.

MOTO-METER CHIEF RAPS TARIFF BILL

(Continued from Page 1)

automotive equipment abroad," Mr. Martin stated.

"Germany is accepting the American manufacturers most cordially and is enthusiastic about the Ford plant there and the General Motors interest in Opel. We found conditions so good there that we expanded our own plant so that they will soon build all of our instruments and our panels.

"In France conditions in the automobile field are just about as they are here. We have, however, negotiated for a financial interest in F. Respassau & Co., our French licensee, and granted them rights to build and distribute our entire line. Similar arrangements were made in England with the Benjamin Electric, Ltd.

"European markets readily accept our interest in their commercial enterprises and co-operate very fully with our plans for expansion," Mr. Martin concluded.

N. Y. AND N. J. MAY CAR SALES EXCEED 1929

(Continued from Page 1)

York, in line with many sections of the country, the peak in new car registrations was not reached in April, as was the case a year ago. In May, 1929, the registrations showed a decline from April.

In this connection it is interesting to note that May registrations for the entire state of New Jersey were 11,728, as compared with 11,485 in the corresponding month of last year, and with 11,784 in April, 1930. A significant factor in these figures is that April sales were under April, 1929, by more than 25 per cent., while May sales showed a gain over last year.

Mr. Sherlock pointed out that in the metropolitan district the sales of high-priced cars in May continued the steady gain they have shown in each month of 1930 over the preceding one. Several makes of cars in this class are ahead of 1929.

Chevrolet sales continue to advance over each previous month also and compare very favorably with 1929 sales, he said. Ford business is still running ahead of last year.

Mr. Sherlock declares that the automobile industry can show the best comparison with business of a year ago.

New Tariff Bill Brings Stiff Foreign Reprisals

(Continued from Page 1)

perts of the foreign tariff division of the Department of Commerce that further threatened reprisals tending to increase automotive duties are not directed solely against American motor manufacturers, but are aimed against many of the stiff increases in the Smoot-Hawley act imposed on numerous foreign commodities.

For instance, it was explained that under the old duties in France American cars constituted but 7.4 per cent. of the purchases of automobiles made by the French last year.

The situation also has developed a perplexing angle in the case of non-manufacturing countries, which are threatening reprisals against American motor cars, indicating that such retaliation is aimed at the

This state of affairs is explained American tariff bill in general, on the theory that the foreign motor vehicle presents an easy target to suit the financial requirements of certain governments, while their high tariff acts as a subsidy to the unprogressive manufacturer abroad, who prefers government aid instead of to improving his manufacturing methods by lowering costs.

Outside of Canada, there are only five countries in the world where there is any considerable automotive production. In Canada last year the production was 260,000 units, with the business in the hands of American manufacturers.

France headed the list of foreign producing countries last year with 260,000 units, England was second with 240,000, Germany third with 70,000, Italy fourth with 54,000 and Czechoslovakia fifth with 15,000.

As finally enacted into law and signed by President Hoover, the new tariff retains the flexibility provision, giving him wide powers in dealing with specific issues as they develop.

Retention of the flexibility provision was sought by the National Automobile Chamber of Commerce on the ground that such power would enable the President to act on the basis of fact rather than opinion, and with the interests of the whole country in mind rather than those of the individual.

In the face of further threatened reprisals by foreign countries insofar as the American automotive export trade is affected, tariff experts in Washington are at a loss at this time to predict what steps the White House eventually will take as a means of stabilizing this business abroad.

Restoration of the old American duty on imported cars, it was pointed out, in retaliation for the increased duties abroad would only serve to further aggravate the situation.

DURANT CUTS PRICE OF FOUR DOOR COACH

Detroit, June 19.—A reduction in price of the new four door coach to $725 is announced by R. T. Hodgkins, general sales manager of Durant Motors. The price was originally set at $750.

KELSEY-HAYES PROFIT TO EQUAL YEAR AGO

New York, June 19.—Kelsey-Hayes Wheel Corporation for the six months ending June 30, 1930, will show practically the same amount of earnings as in the first half of 1929, according to estimates in banking circles.

Net profit in the first six months of 1929 was $1,975,779, equal to $2.43 a share on 749,454 shares of no-par common after dividend requirements on the 7 per cent. preferred stock. Anticipated profits for first six months of 1930 would equal approximately two and a half times dividend requirements for the period, and are in excess of the full year's dividend of $2 a share on the common.

Kelsey-Hayes has maintained a high level of operations, notwithstanding general depression, because of its large volume of business with low-priced car manufacturers, who this year are getting a bigger percentage of the available business.

Kelsey-Hayes supplies all of Chevrolet's wire wheel requirements and 50 per cent. of Ford's passenger car wheels, in addition to one-third of brake requirements and miscellaneous stampings for Ford.

Current production averages approximately 35,000 wheels a day, which rate has been maintained during past three months. Operations will be affected, of course, by two weeks' closing of Ford Motor Company in July for vacation, but also will be aided by increased schedules for new models expected shortly after mid-year.

MACK TRUCKS, INC.

Statement of Mack Trucks, Inc., and subsidiaries as of March 31, 1930, shows total assets of $70,569,056, comparing with $68,727,313 on December 31, 1929, and earned surplus of $24,655,170 against $25,309,440. Current assets on March 31 amounted to $44,953,918 and current liabilities $8,440,500 comparing with $44,292,991 and $6,388,547, respectively, on December 31, 1929.

Income account for quarter ended March 31, 1930, follows: Sales, $10,526,580; operating profit, $1,103,925; depreciation, $550,216; Federal taxes, $63,000; net profit, $490,709.

PART OF DURANT ELIZABETH PLANT LEASED TO STANDARD

Elizabeth, N. J., June 19.—About 17,000 square feet in the vacant plant of the Durant Motor Company at Newark and North Avenues was occupied this week by the engineering department of the Hydro Engineering and Chemical Company, a new subsidiary of the Standard Oil Company of New Jersey, which is developing the hydrogenation process of gasoline manufacture. This lease is apart from the industrial terminal project of the Durant Company.

SPARKS *from* DETROIT

Mr. Tsao's Comments

* * *

Finance Reports

* * *

New Planes for the Navy

* * *

Fred Kingsbury—Detroit Editor

DESPITE the fact we hear so much about wars in China, we learn that these wars are not having much effect on international business, as far as that country is concerned.

M. T. Tsao, automobile importer of Tientsin, China, has been in Detroit for a few days. He says that despite the considerable number of obstacles that are encountered, China is progressing and that what that nation needs most to promote peace is better avenues of communication. He says that a system of highways is being developed in North China and that greater progress is being made there than in the southern part.

Mr. Tsao also says that he should like to see the United States become the major source of supply for China.

"Of course Detroit and Toledo and other cities associated with the automotive industry would like to see the Chinese market for such vehicles show improvement," Mr. Tsao said. "As a matter of fact there was a slight decline last year. In 1928 china imported 1,796 automotive vehicles, worth $1,250,000. Last year it imported 1,396 and the value was only a little more than $1,000,000. The total Chinese importation of automotive vehicles is not great considering our potential buying power."

* * *

AUTOMOBILE men are pointing to the report on financing made by the Department of Commerce, to show that business is not so bad as some people would have us think. This report shows that during the first four months of this year retail financing was required on 985,357 automobile purchases, compared with 1,026,275 the first four months of last year. Loans aggregating $421,781,993 were made, as compared with $476,664,500 during the same period in 1929.

* * *

EDWARD S. EVANS, president of the Detroit Aircraft Corporation, has announced that his company has received an order from the United States Navy for thirty-two torpedo, bombing and scout planes.

Mr. Evans also announced that work would be started on the first ship at once, and that it would be ready for delivery in six months. The others are to be delivered over a period of two years.

The total value of the thirty-two planes will be approximately $827,349, an average of $25,854 per ship.

* * *

DETROIT is getting ready for its annual campaign for safe motor cars. The Detroit Automobile Club and Public Safety League will place brake testing machines and operators at numerous points in the city. There also will be machines for the adjustment of rear view mirrors, wheel alignment and headlight adjustment.

These tests are solely for the purpose of furnishing the owners of motor cars and trucks with necessary information regarding their automobiles.

* * *

There is a great hustle and bustle in the general offices of the American Austin Car Company in this city. In the past month or two, the mail to these offices has increased by leaps and bounds and a large office force is working day and night to take care of this business.

* * *

WHILE in the offices of the Campbell-Ewald Company this morning we noticed Bill Moffat, head of the publicity department, "pounding" away on a typewriter for dear life. Every one else in these offices was also typing busily.

We wondered what all this activity was about, and Bill told us that as this was the vacation period every one was "doubling up" to keep things running smoothly.

NEW JERSEY TO BAN UNSAFE AUTOMOBILES

Trenton, N. J., June 19.—Mechanically unfit automobiles are a 15 per cent. factor in accidents, Motor Vehicle Commissioner Harold G. Hoffman declared in a statement today in which he pointed out that virtually every traffic and safety authority regards this figure as too high to be ignored.

"New Jersey's decision to remove the mechanically unsafe automobiles from its highways," the commissioner stated, "is directly in line with the most advanced thought of the country. Primarily, it recognizes that the public welfare is the first consideration and that the motorist who refuses to abide by the requirements of safety is unworthy of the privilege of owning and operating an automobile in this state."

100 N. Y. CAR MERCHANTS ATTEND GOLF TOURNAMENT

New York, June 19.—The third monthly tournament of the Automobile Merchants Association of New York, Inc., drew more than 100 ambitious golfers from their various lines of endeavor to the links of the Knollwood Country Club Tuesday. Next month's tournament will be held at Green Meadows Country Club on July 22.

MERCHANDISING ACCESSORIES EQUIPMENT

WHOLESALE

DISTRIBUTION SHOP EQUIPMENT REPLACEMENTS

Brosch Tells How to Handle The 'Know It All' Customer

ANOTHER short story on successful service salesmanship, by George Brosch, manager automotive merchandising and marketing division Business Training Corporation, refers to "The 'Know-It-All" Customer.' It follows:

Early last winter a motorist drove into a service station in one of the suburbs of Philadelphia. "I want that engine gone over," he said, "and tuned up all around. Nothing much new needed, unless it's a plug in that number two cylinder. And the points are worn pretty bad. Then I need some new bushings in the steering gear—here and here, see? Tighten it up all around, too. How much will it come to?"

The salesman consulted his rate list.

"The labor alone," he said, "will be ten dollars and fifty cents."

"Ten-fifty!" repeated the customer. "Say, Jesse James rode a horse."

"Well, that includes going over your valves, checking the distributor points, cleaning out the oil filter, adjusting the—"

"Listen, Doc," broke in the customer, "I know all about that. I worked on the floor myself for four or five years. Fact is, if I wasn't so busy I'd do the job myself. But you're asking too much for it. I know."

"You used to be a mechanic?" asked the salesman. "Well, then, there isn't much I can tell you about this job, is there?"

"Not much," replied the customer, confidently.

"And of course you know that you usually get just about what you pay for," went on the salesman. "You know how it is in some places where you get a cut-price job; they may do everything they put on the ticket, and then again they may not. Isn't that right?"

"I'll tell the world it is," agreed the customer.

"There's no use my telling you we're giving away the work we do," continued the salesman. "You know better than that. We charge a fair price that makes us a profit; but we give you just what you pay for. And that's what you want, isn't it?"

The customer grinned. "All right, Doc, you win. Sure, I know you've got to make a profit. Hop to it. And say, while you're at it, tighten up all those body bolts will you?"

Methods of this type usually succeed with the "know-it-all." It is never wise to contradict him. Bow to his "superior judgment" and ask his opinion. He likes to talk, he wants a chance to air knowledge, and he wants to be agreed with. Let him talk. If he talks long enough he will talk himself into the purchase. Agree with him every time you get a chance. Above all, don't try to argue with him. Even if you win the argument, you will probably lose the sale.

The salesman's success, in dealing with such customers, depends first of all on his ability to size them up correctly, early in the interview. With regular customers, whom the salesman meets frequently, he should never be in doubt as to the best tactics to use. With new customers, he should be on the alert for signs and indications that will tell him how to proceed. Study your customers is sound advice for every man who sells automotive products and services.

Editor's Column

THE M. E. A. will hold its show in Cleveland the week preceding that of the N. S. P. A. Both associations will use the same floor plan. It will be impossible to set aside a special division of the show in which dual members could hold space throughout the two weeks for the following outstanding reasons:—

The necessity of tying up more than 50 per cent. of the show space for this purpose, thereby discriminating against those members of each association who are not members of the other.

Such a division would utilize more space than is available in the "arena," where the only entrance is located, or would take up the greater portion of the West Annex, and in either case to definitely allocate space for a special dual members' division would keep individual members of either association out of that portion of the exhibition.

Dual members using the same national allied sales forces as individual members would be unable to group their exhibits with those of the individual members, thereby making it difficult for their allied sales representatives to service the two exhibits.

If a separate division be set aside for dual members, it would not be possible to conduct the drawing in accordance with the resolution approved by the member body at the third general convention session, November 1, 1928, providing for the space allotment drawing to be conducted in two divisions.

To minimize the moving of exhibits between shows, the M. E. A. has adopted the same floor plan as will be used by the N. S. P. A., and arrangements have been made whereby the space allotment drawings for each association will be held on consecutive days, so that space alloted dual members for the one show may as nearly as possible, be obtained in the other.

AUTOMOTIVE REBUILDERS HOLD ANNUAL SESSION

Chicago, June, 19.—The eighth annual convention and exhibition of the Automotive Engine Rebuilders, held at the Sherman Hotel recently, had the largest attendance of any convention ever held by this organization. Speakers of national prominence spoke on matters pertaining to the rebuilding business, and, as is customary at meetings of this organization, the open discussion from the floor brought forth many points of interest.

Several parts manufacturers had small booths displaying their wares. A complete program of entertainmen, both for the visiting delegates and their families, was arranged by the committee. Trips through many of the automotive manufacturers' plants located in Chicago was an interesting part of the program.

R. M. Hollingshead Co. Introduces Lusterize

WAXING of automobiles has become increasingly popular, the public recognizing that a thin coating of wax on automobile bodies and fenders offered the same advantages as the wax finish on floors and other lustrous surfaces.

available aand several of them have or portable polishing machines liquid is applied, then buffed while proved satisfactory for use with a cleaner, but not as a rule with polish or wax.

Working in co-operation with some of the largest manufacturers of electric polishing equipment, R. M. Hollingshead Company has developed Whiz liquid lusterize. The liquid is applied then buffed while wet until new-car brilliance is restored.

The new lusterize operation takes from one and one-half to three hours, as compared to six to ten hours required for hand operation.

ADDS TO EQUIPMENT

Erie, Pa., June 19.—The Pennsylvania Rubber and Supply Company has added considerable new equipment to its mechanical service department. A new brake drum lathe, a rebabbitting machine and a line boring tool are now in operation.

ERECTING NEW STORE

Milford, Del., June 19.—Wharton & Barnard of this place are erecting a new store and warehouse. The new store will have about four times the floor space of the present location and the warehouse will be in a separate building.

SCHULTZ DIE CASTING CHARTERED IN OHIO

Toledo, O., June 19.—A state charter to deal in and manufacture dies, castings and machinery has been granted the Schultz Die Casting Company, Toledo.

Behind the company is J. A. Schultz, formerly vice-president and general manager of the Doehler Die Castings Company. The company is authorized to issue 5,000 shares of no-par common stock and 400 shares of $100 par preferred.

A. C. HINE CO. HANDLES G. M. RADIOS IN CONN.

Hartford, Conn., June 19.—More than usual interest attaches to the new General Motors radio sets which are being handled exclusively in this city by the A. C. Hine Company, state distributor of the Oakland and Pontiac. Harry C. Hine of the local company is handling the radio accounts and is now developing a list of associate dealers. Eventually it is expected that the associate dealers of the company who sell the Oakland and Pontiac will also handle G. M. Radio. The Hine company recently completed a studio in its sales building on Washington Street, this being a special soundproof affair where the various sets may be demonstrated.

Wholesale Brevities

Wichita Falls, Tex., June 19.—Ed Dyer, formerly city salesman for Auto Equipment Company, is now manager of the Schoelkopf Company of San Angelo, Tex.

Anderson, Ind., June 19.—A new Van Norman piston grinder has been added by the Auto Electric Service Company.

Inglewood, Cal., June 19.—Hugh Gibson of Gibson Motor Parts Company, Inglewood and Redondo, is motoring to points East on his vacation.

Omaha, Neb., June 19.—Tom Craig, formerly sales manager for Nebraska Buick Auto Company, has been recently appointed manager of the Des Moines, Ia., branch.

Philadelphia, June 19.—J. F. Gordon has joined the forces of the George W. Nock Company. He has been in the parts business in this trade territory for a number of years.

In the Accessory Field

Elmira, N. Y., June 19.—E. E. Schalter, 679 West Washington Ave., has organized the Electric Garage and Service Station and plans to conduct a general repair business in connection with a super-service station and auto accessory shop.

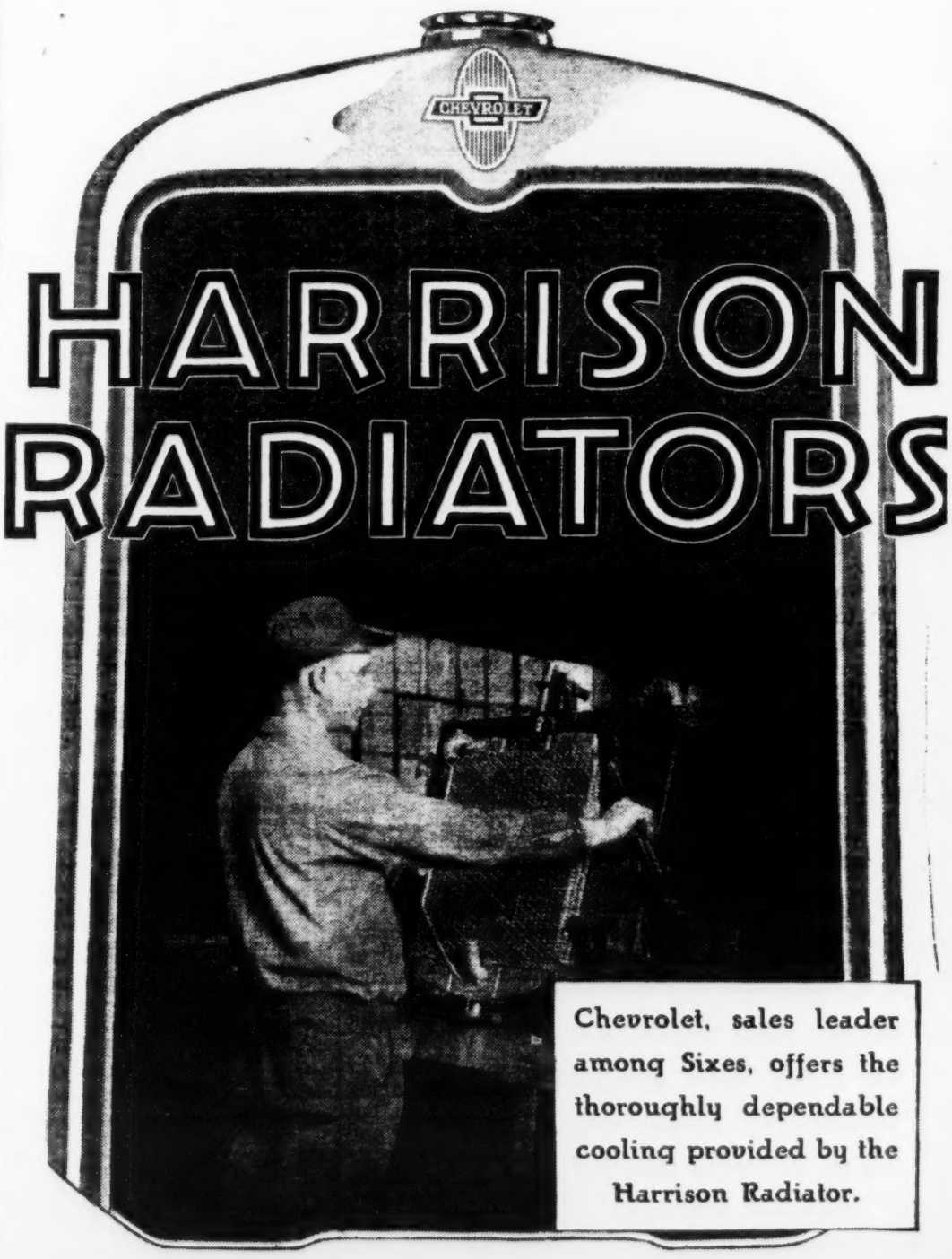
Toledo, O., June 19.—The second Stachler service station in Toledo has been opened at 4010 Monroe St. by William Stachler. The new station will handle Firestone tires, Refiners lubricants and gasoline, will do car washing, greasing, tire repairing, vulcanizing and service batteries. It is known as the Firestone One-Stop Service Station.

Seymour, Conn., June 19.— William Fox has opened a reparir garage and shop on the Oxford Road. e was formerly connected with Decker's Garage.

Fort Dodge, Ia., Jpne 19.— Max Spilka and Louis Rabiner, owners of the Iowa Auto Supply Company, 606 1st Ave., South, and the Fort Dodge Auto Wrecking Company, 409 1st Ave., South, have dissolved partnership, Mr. Spilka taking over the Rainer interests and becoming sole owner. The Iowa Auto Supply is one of the largest automobile accessory firms in this section with wholesale and retail distribution facilities for tires, accessories and parts throughout northeastern Iowa.

Buffalo, June 19.—The F. A. Whittaker Company of Middleport, N. Y., has purchased a large tract of land in Main Street of that village and will erect a modern automobile service station, also an accessories store on the property, starting at once.

Grundy Center, Ia., June 19.—The Grundy Oil Company, an independent, operating three stations under ownership of Walter Huyck and Alfred Bienfang, has been sold to the White Eagle Oil Company, Kansas City, for $50,000 for station and business with rolling stock at inventory price, which will bring the sale figure to about $60,000.


CHEVROLET
HARRISON
RADIATORS
Chevrolet, sales leader among Sixes, offers the thoroughly dependable cooling provided by the Harrison Radiator.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday and Monday by
AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION,
350 Hudson St., New York, N. Y.
O. J. Elder, President H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.

Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.

Circulation—Net paid Average over 10,000 daily guaranteed.
Member A. B. C.

FRIDAY, JUNE 20, 1930

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1926 Broadway, New York, N. Y. Telephone TRA falgar 4500
Subscription Rates—One year, $12.00; two years, $20.00, for United States and Canada. To Foreign Countries—One year, $15.00; two years, $26.00. Single copies, 10 cents.

Incentive Wages

IT is only within a comparatively few years that employers have tried out the possibilities of giving labor an incentive to do more and better work. The idea is still very much in the experimental stage and from all that we know at the present time is applicable to only a limited class of labor. The greatest proportion of labor still is paid for by the ancient and obvious method of so much per day, per week, per month or per hour. Work paid for at so much per piece may be said to have some of the elements of incentive payment.

In a recent study of systems of wage payment by the National Industrial Conference Board of New York, this subject of incentive wages comes in for a good deal of interesting analysis. Listing the various forms of work where incentive payments are difficult, the study includes labor where quality rather than quantity is the desired end, clerical and office work and all industrial operations where the cost of installing and keeping the necessary records outweight the advantages gained.

It is a fact that up to this time the incentive wage plan has been used principally by larger industrial units. In a questionnaire sent out by the organization mentioned above, 97 per cent. of the companies employing more than 1,500 workers use some form of incentive. On the other hand less than 50 per cent. of the companies employing fewer than 150 people, use this form of stimulating production.

The most widely used form of labor incentive is the piece wage system. It was found that with companies using this form of incentive, production was increased anywhere from 10 per cent. to 400; that labor's earnings increased from 10 to 100 per cent. and that units costs were reduced from 10 to 50 per cent. On the other hand the best conceived incentive wage system in the world will be of no advantage, unless the other factors in the administration of the individual company are on a sound basis.

"It can not," the conference board states, "be overlooked that productiveness in industry is not linked exclusively with any system of wage payment, but depends upon many factors. No system of wage payment of itself will necessarily produce either efficiency or inefficiency. If, for example, a system such as the time wage system tends towards inefficiency, high costs and low production, these tendencies may in considerable part be overcome by an intelligent factory administration. Other systems which it is contended are likely to promote efficiency, increase production and lower costs may fail altogether to do so if they are unintelligently installed and laxly administered.

"Labor efficiency is essential to productive efficiency. With the expensive machinery and elaborate equipment of modern industry, inefficiency among the workers is a clog upon management. Whether through incentive systems or otherwise, means must be found to eliminate inefficient workers if production is to be profitable.

"As industrial competition throughout the nations of the world grows more and more intense, with manufacturing no longer confined to the countries of Western Europe, but developing rapidly in Japan, India, Australia, Canada and South America, and as the superior advantages of quantity production compel larger and larger enterprises, the American manufacturer will find 'incentive systems' of wage payment increasingly urgent. A sound understanding of their essential principles is therefore very important."

Ask Us To Tell You—

IN presenting this service department, The Automotive Daily News is actuated by the desire to help its readers solve their problems, whether these are merchandising, technical or in the field of general automotive information. We shall be glad to have our readers ask us any questions pertaining to the automotive field.

In some instances readers may desire information which will require an expenditure of money to secure, and in such cases we shall be glad to get the desired data at the least possible cost, or we shall inform our readers where they may obtain it most economically and expeditiously.

In cases where the reader desires an immediate reply, we would suggest that he inclose a self-addressed and stamped envelope. Other inquiries will be printed in the paper from day to day in the order in which they are received.

Automotive Daily News: There has been much comment made in time to time by dealers and statements from manufacturers, in regard to the used car junking. It is true that several manufacturers now assist their dealers in the junking of cars, but only to a limited extent.

The allowance of $25 to $40 for junking purposes, by the manufacturer, does not meet the situation at all, as the used car loss occurs in the cars above that value, if the latter has any value at all. The question is what can be done to assist the dealer who has to take in a used car 75 per cent. of the time and then has to sell two cars, with profit on only the one. We have been told we are not expected to make profit on used cars. Still we have a big overhead to take care of, entirely out of the discount on the new car.

The time is coming when that sort of thing must be met and met resolutely or many will have to go out of business. The manufacturers have more or less enjoyed the demoralization caused by a too numerous dealership in metropolitan sections, especially where the dealers compete with each other for business, the used car being the gamble, or shall I say loss, in the transactions as it generally is.

The manufacturers might evolve a plan to junk all cars up to $100 and then see that they reach a blast furnace for melting up purposes which would be considerable salvage, especially if water transportation could be had instead of railroads. For instance, the manufacturers might get a few of the ships the United States government has in several eastern ports rusting at their anchor chains which would keep the ships at least navigable if ever wanted.

There is another thing which the automobile dealer can do and that is this: It is now fully known that the present expensive salesrooms of the average dealer must go and that he can not under present conditions maintain Main Street places, and that is the reason so many are giving up their expensive salesrooms and service stations and either going into the suburbs or on streets where rent is more reasonable.

The other day it was suggested to a trade association that a plan might be evolved for all dealers to get together and form a company for the purpose of building an immense structure which need not be tall or ornate, with a service station in the center, even if it took two blocks of ground for the purpose. Each dealer would have his separate store and separate part of the service station, so that there would be a perpetual show on all the time and the buyer of automobiles would see all the cars practically under one roof, thus saving time and possibly bring the dealer his share of the business more promptly.

If the manufacturers should go further and bring out their models in early summer of the following year, there would be no waiting for shows or new models while the dealer is comparatively idle but overhead continuing all the time. There is no reason in the world why a person should be asked to wait several months for a new model when the dealer has plenty of the current models on his hands. In other words, why confine the dealers to approximately four months—March, April, May and June, recognized as the large selling months—with little or nothing to do in between.

This writer has been in the automobile business a long time and has always opposed this holding up of the public which, at the same time, is strangling the dealer.

A NEW JERSEY MOTOR CAR DEALER.

COMING EVENTS

JUNE

23-26—**San Francisco, Cal.** Meeting American Electric Railway Association.
23-27—**Atlantic City, N. J.** American Society for Testing Materials annual meeting at Chalfonte-Haddon Hall.
26-28—**White Sulphur Springs, W. Va.** Steel Founders Society summer convention.
29-July 13—**Posen, Poland.** International Motor and Transport Show.

AUGUST

26-28—**Chicago, Ill.** Society of Automotive Engineers aeronautic meeting in conjunction with National Air Races.

SEPTEMBER

22-26—**Chicago, Ill.** American Society for Steel Treating meeting at Stevens Hotel.
29-Oct. 4—**Pittsburgh, Pa.** National Safety Council Annual Safety Congress.

OCTOBER

2-12—**Paris, France.** Automobile Salon.
6-11—**Washington, D. C.** Sixth International Road Congress.
6-11—**Washington, D. C.** American Roadbuilders' Association Convention.
8- 9—**Detroit, Mich.** Society of Automotive Engineers production meeting at Book-Cadillac Hotel.
22-24—**Pittsburgh, Pa.** Society of Automotive Engineers' transportation meeting.
16-25—**London, England.** Olympia Motor Show.

NOVEMBER

6-16—**Berlin, Germany.** International Automobile Show.
8-15—**Chicago, Ill.** Automobile Salon at Drake Hotel.
10-14—**Cleveland, O.** Motor and Equipment Association Show.
17-21—**Cleveland, O.** National Standard Parts Association Show.
30-Dec. 6—**New York.** Automobile Salon at Hotel Commodore.

DECEMBER

6-17—**Brussels, Belgium.** Automobile Exhibition.

JANUARY

3-10—**New York.** National Automobile Show.
24-31—**Chicago, Ill.** National Automobile Show.

BUYS CHEVROLET COMPANY

Long Beach, Cal., June 19.—Spencer Kennelly, Inc., Chevrolet dealership, 6th and American Avenues, has been purchased by Hoover & Olney, Inc.

New Dealers Appointed

NEW MEXICO

Auburn—Poe-Scott Motor Company, Lordsburg.

NEW YORK

Graham - Paige—Pyke Motors, Brooklyn; Odell Motor Company, Inc., Ithaca; Strauss Motors, New York city; Collins Hamblen, Yorktown Heights.

Auburn—Mallett's Garage, Cobleskill; Oscar A. Scott, Delmar; Mullett's Service Garage, Dansville.

NORTH DAKOTA

Graham-Paige—Joe T. Thompson, Hatton.

OHIO

Graham-Paige—N. G. McKelvey, Killduck.

Durant — Peerless City Garage, Portsmouth.

Auburn — Arnold's Garage, Norwalk; P. M. Bacon, Inc., Wauseon; Carrie B. Glass, Coshocton.

OREGON

Auburn—August E. Young (distributor), Ontario.

PENNSYLVANIA

Durant—E. T. O'Hara & Sons, Ebensburg; Stamm Garage, Harmony; Crist Brothers, Ralphton; Brunberg Garage, Windberg.

Marmon-Roosevelt—Beadle Motor Car Company, Shamokin.

Graham-Paige—M. F. Culver, Berwick; Dravosburg Auto and Machinery Company, Dravosburg; L. L. Gess Motor Company, Latrobe; Palmer Auto Storage, Palmerton.

Auburn—State Auto Sales Company, New Castle; Alberti Motor Sales, Titusville.

RHODE ISLAND

Graham-Paige—Delfino & Volatile, Inc., Providence.

SOUTH CAROLINA

Graham-Paige—L. H. Barnett, Spartanburg.

SOUTH DAKOTA

Reo—Edward Schaefer, Armour; Casey Hardware Company, Kennebec; M. & S. Motor Company, Platte.

Graham-Paige—Stickney & Herman, Edgemont.

Safe!
Simple, Safe and Efficient
Simple . . . because the fitting is a one-piece sleeve slipped over the cable end. No solder. No clips or other additional parts to complicate design.
Safe . . . because Tru-Loc Fittings are uniform in strength. Exhaustive tests by leading engineering authorities have yet to prove a single case where a Tru-Loc Fitting has failed to exceed specification strength.
Efficient, because the Tru-Lay Cable and Tru-Loc Fitting Assemblies come to you ready to install. Write for detailed information.
AMERICAN CABLE COMPANY, Incorporated
An Associate Company of the American Chain Co., Inc.
3-111 General Motors Building, Detroit, Michigan.
Executive Offices:
New York Central Building, 230 Park Ave., New York, N. Y.
ACCO
TRU CABLE LAY
TRU FITTINGS LOC
TRU BRAKE CONTROL STOP

FORD DEALER IN OHIO CASHES IN ON EIGHT NEW MODEL A SALES TO AS MANY DOCTORS

WHEN a doctor in the city buys a new automobile it is a matter of only passing interest. But when eight physicians agree on the same kind of a car it makes a real testimonial for the distributor.

This fact was capitalized by the Timmerman Motor Sales Company of Lima, O., in "Timmerman's Broadcaster," a small monthly pamphlet which is mailed to 2,000 persons of the city at a cost of $88 a month.

The Broadcaster has proven an excellent business stimulator, according to W. A. Davisson, treasurer of the company. It has been used for eighteen months and is considered one of the best advertising mediums sponsored by the company.

Timmerman's handles the Ford products. One issue of the bulletin labeled the Model A Ford as "the Liberty bond of the automobile industry."

A crippled stork bemoaned the fact that he was tired out and unable to keep up with the doctors of the city, while in the adjoining column were the names of eight physicians of Lima who had purchased the latest model Ford car.

The fact that a physician must have a dependable car was stressed in a paragraph just above the cartoon. Below this was an advertisement for the new lubrication service, "6 for 5," meaning six complete greasings for $5.

The front of an old dilapidated building, which in the horse and buggy days was a blacksmith shop and had been transformed into a garage with the arrival of the gasoline buggy, provided an illustration for the last paragraph, which pointed out the large investment of this company in parts and equipment to do efficient repair work, and the exactness with which repairs must be done.

"We choose and make up the copy which goes into the bulletin," Davisson explained.

TIMMERMAN'S
BROADCASTER
FROM TIMMERMAN MOTOR SALES CO.
Ford Sales & Service - "The House of Personal Service" - LIMA, OHIO.
The NEW FORD LEADS CAR SALES EVERYWHERE
MODEL "A" Ford
The LIBERTY BOND of the AUTOMOBILE INDUSTRY
What's your car worth fifteen minutes after you sign the dealer's order? 500 miles--or five years after? The resale value of the Model A Ford is perhaps the nearest to purchase price of any other car on the market. The old Model "T" Ford gained this place through customer satisfaction. So today the new Ford sets even a higher mark in this respect. That's why we say it is "The Liberty Bond of the Automobile Industry". The Model A is a safe investment.
EXACTING PEOPLE buy many "A" cars. Among these are our physicians. Doctors need dependable, speedy transportation combined with easy and comfortable driving. The following list shows some of the profession in this community using Model "A" cars. They like 'em.
Dr. J.R. Johnson
Dr. E.J. Curtiss
Dr. C.D. Gamble
Dr. E.D. Sinks
Dr. E.B. Padlow
Dr. H.L. Stelzer
Dr. J.B. Vail
Dr. Heilman
"SNO USE I'M ALL TIRED OUT I CAN'T KEEP UP WITH THE DOCTORS NOW!"
BLACK GARAGE
6 for 5--Say, folks, have you been using our "6 for 5" lubrication service? We have installed 2 Weaver Hydraulic Lifts and a 3000 pound pressure grease gun system. This enables us to give you six complete greasings for $5.00. Don't miss it.
This old fashioned garage was a cross between a blacksmith shop and a filling station. Wise Model A owners no longer take their cars to such places for service. Model A Fords have parts that fit to one thousandth of an inch. It requires precision tools and Ford factory trained mechanics to properly adjust such parts. Our investment of $15,000.00 in Ford service equipment is your assurance of prompt and efficient Ford service.
The HOUSE of PERSONAL SERVICE

OMAHA CHEVROLET DEALER SELLS 1,678 NEW AND USED CARS SINCE JAN. 1

Omaha, Neb., June 19.—Central Chevrolet Company, 20th and Dodge Streets, has established an enviable sales record on new and used Chevrolets since the first of the year, according to O. T. Miller, Omaha zone manager for the Chevrolet Motor Company.

H. F. Vandenberg, president of the Central Chevrolet Company, and Earl Betts, sales manager, have directed the sales of 554 new Chevrolet sixes since January 1, while Mr. Smith, in charge of used car operations and vice-president of the company, has established a sales record of 1,124 used cars during the same period, making a total of 1,678 sales during the first five-month period.

The service end of the Central Chevrolet Company, headed by Ralph Martin, has handled on the average of fifty cars per day in the service department since January 1. This department is one of the finest equipped west of the Mississippi River and also offers complete Fisher body service, operated by factory-trained men, for the convenience of Chevrolet owners.

Twenty cars will be used during the month of June, which has been designated as demonstration month, by the Central Chevrolet Company, and thirty-five salesmen will be at the command of the public. Operating with 103 employees in all departments, the company is experiencing one of the most profitable selling seasons in this territory, with a percentage of increase in sales far above the same period last year, the Omaha Chevrolet zone manager states.

FORD CHICAGO BRANCH PRODUCED IN MAY 550 CARS AND TRUCKS DAILY

Chicago, June 19.—Retail deliveries of passenger and commercial cars in the territory served by the Chicago branch of the Ford Motor Company showed a 13 per cent. increase in the first twenty days of May as compared with the same period last year, according to a report issued today.

It is further stated that since the new Ford body types were introduced last December production at Chicago plant has gained steadily, reaching a daily rate of 550 cars and trucks during May. Territory served by this branch includes northern Illinois, northern Indiana and a smal section of eastern Iowa.

Hollywood Chevrolet Dealer Stresses 'Right' Service

"YOU Are Now Where It's Done Right," declares a large sign on the wall of the service department of Charles Schonlaw's Chevrolet dealership, 7636 Santa Monica Boulevard, Hollywood, Cal.

Mr. Schonlaw believes that it not only is necessary to do good service work to build for future new car sales, but equally as necessary that the public be told about that good service.

To that end he uses two mediums: direct mail advertising, and personal approach through his new car salesmen.

In direct mail advertising, Mr. Schonlaw believes in consistently plugging a list of 3,000 Chevrolet owners in his territory. Once a month a form letter goes out to this list, supplemented by a postcard between letter mailings, so that each prospective service customers is contacted every fifteen days.

* * *

GENERALITIES alone are not used to interest prospective customers or regular customers. Special prices on timely shop operations are quoted in these letters. For instance, in one four-page folder type of letter, the inside page quoted: Our vacation specials for this month include:

1. Grind valves and clean carbon, four cylinders $4.95
Six cylinders 7.39
2. Adjust brakes and brake linkage, two wheels ..... .90
Four wheels 1.75
3. Complete tightening of your car. This job includes all alemite connections, body bolts spring shackles, manifold bolts, fender bolts and bumper and hood parts 3.50

In order to check results from these letters signed by the service manager there is a P. S. that says: "If when you do come in—and I surely hope you do—you mention this letter, I will have the satisfaction of knowing that I at least scored one bull's-eye."

The second method of increasing service volume and retaining old customers is through the sales force. Each salesman has his own territory where he is virtually in business for himself. He is expected to produce not only new and used car sales in that territory, but also look after service work. As he receives 10 per cent. on all service jobs, he has a real incentive. In addition to this, each salesman realizes that the back end of the business is creating good will that will ultimately result in new car sales in his own territory.

* * *

THE service jobs that the new car salesmen obtain for the shop also help them to swell their individual annual volumes so that they can participate in a one-half of one per cent. annual bonus. This bonus is payable to all salesmen attaining a volume of $50,000 or more annually on all business—new and used cars, accessories and service. It is distributed at the end of each year.

Mr. Schonlaw is a strong advocate of sales contests, but he believes in giving the salesmen a little variety in their contests from time to time. Sometimes he puts it on a sporting basis. For instance, the force being agreeable, he makes the proposition that for each $10 put up by each salesman he will match it, making a grand total in prize money for his staff of twelve salesmen of $240 to go to the winning team, or winning men. Further, he will give the salesmen a chance to retrieve the $10 they have put up out of their own pockets. This can be accomplished by making their personal quota for the month, watever that may happen to be.

Thus, a Schonlaw contest frequently has many angles. For example, a certain salesman might put up $10 toward a contest, then make his personal quota of six cars by the end of three weeks, and have his $10 returned by the firm. In the last ten days he might spurt to the front with six or seven more new car sales and lead the field, getting the first prize, of say $120, which, were it not for the dollar for dollar matching of salesmen's money to management's would only be $60.

* * *

ANOTHER variation given to the sales contest policy, is that of using a punch board. This contest had $250 in prize money to pay off the lucky punches on the punch board. Every morning, at each sales meeting, the money in a glass jar was displayed to the salesmen.

Here's how it worked. A used car sale would entitle the salesman to, say, five punches, while a used car carried in stock over sixty days might be worth seven punches. A new car would be valued at one, two or three punches, depending upon circumstances, while a new truck rates five tries at the punch board.

With the exceptions, later noted, the odd numbers on the punch boards did not pay anything. Even numbers paid one dollar out of the glass jar. Numbers 5, 10, 15, etc., paid $2. Numbers 10, 20, 30 paid $5, while 1, 50, 100, 150 and 200 paid $25.

Accessories, chiefly sold installed on the new cars, constitute an appreciable part of Schonlaw's volume. These accessories and extras are placed on the car when it is on the display floor and, due to the salesman's persuasiveness, seldom come off. The principal reason is that salesmen get 10 per cent. on such extras.

Deans of the Dealer World

WHEN people talk of selling motor cars in the nation's capital, oldtimers recall "Rudy" Jose as readily as this modern-day generation thinks of "Rudy" Vallee when it thinks of crooning melodies.

But this old-timer in the automotive trade of Washington is very much modern in this era.

Rudolph Jose is president and treasurer of the Washington-Cadillac Company. Today he talks of the Cadillac "16" with all the enthusiasm that enveloped him back in 1397 when he got in the ground floor with the Pope Manufacturing Company, handling the Rambler hydro car and the Toledo steamer.

For more than twenty years he has been the mainspring— the human dynamo—of the Washington Automotive Trade Association, serving two terms as president and numerous terms in other official capacities, as well as acting as chairman of th show committee for every annual exhibition held in the capital.

Mr. Jose was a pioneer in the old bicycle racing days around Washington and was an active performer as a youth on the saucer board tracks.

When Pope produced the famous quartette, Toledo, Waverly, Hartford and Tribune, Mr. Jose took over important work at the sales and publicity end of the business.

In early 1903 the Washington Pope branch took the agency for the single-cylinder Cadillac, and with the exception of a few years, Jose has been tied up with Cadillac ever since—fifteen added cylinders of faithful years.

Mr. Jose was educated in the public schools of this city. In addition to his long affiliation with the Washington Automotive Trade Association of which he was the principal founder, Mr. Jose is a member of the following organizations:—

Washington Chamber of Commerce, Board of Trade, Society of Automotive Engineers, Beaver Dam Country Club, Columbia Country Club, City Club, Racquet Club, Congressional Country Club and Civitan Club.

RUDOLPH JOSE

In civic affairs Mr. Jose is rated "a pretty fine citizen," taking an active and consistent part in all movements for the betterment of conditions in the only voteless community in the United States. He also enjoys the most wholesome respect of the automotive trade generally.

Cadillac thinks a tremendous lot of Jose—and Jose thinks nothing else runs but Cadillac.

NAMED RETAIL MANAGER

Memphis, Tenn., June 19.—Harry Davis has been named retail manager of Maury-Newsum Company, 300 Monroe Ave., Ford dealer.

CHEVROLET DEALERS ATTEND MEETING AT WATERTOWN, N. Y.

Watertown, N. Y., June 19.—More than fifty Chevrolet dealers from this section met at the Hotel Woodruff here to attend a business meeting conducted by H. K. Bragle, Syracuse, N. Y., zone manager of the Chevrolet Motor Company.

In the opening session Mr. Bragle congratulated the dealers on their record of sales over the past year. Chrevolet sales in this area have slightly exceeded last year's record, despite a general falling off in the industry.

With Mr. Bragle and taking part in the day's program were Lee Les Lewis, Syracuse manager of the General Motors Acceptance Corporation; D. H. Smith, asistant to Mr. Bragle; O. A. Moore, Chevrolet sales promotion manager; H. P. Senior, Chevrolet parts and service manager, and C. W. Bastable, representative for Chevrolet in this territory.

FORD DEALER NAMED AT NEW BRIGHTON, PA.

New Brighton, Pa., June 19.—The John B. Winters Jr. Garage at 428 Third avenue, here, has been appointed dealer for the Ford line of cars. This appointment was made by the Sampson & McBeath Motor Company of Beaver Falls, Pa., Ford distributor in this district.

NEW CHEVROLET COMPANY FORMED IN RICHMOND, VA.

Richmond, Va., June 19 (UTPS).—Robertson Chevrolet Company, Inc., of this city, with maximum capital of $50,000, has been granted a charter by the State Corporation Commission to manufacture, buy, sell and deal in automobiles. C. B. Robertson, Jr., of Richmond, is president. Parish and Butcher, also of this city, are attorneys for the company.

FOREIGN FORD WORKERS TO BE PAID ACCORDING TO BASIS OF U. S. SURVEY

Washington, June 19.—The Department of Labor has just completed a survey designed to provide a basis for deciding what wages are to be paid employees of the Ford Motor Company in foreign countries on the same living standard of workers in Detroit where the average wage is $7 a day.

A report of the survey has been sent to the International Labor office at Geneva.

The study in the United States is to be followed by similar inquiries in seventeen European cities, the object being to obtain the "real" living costs of the Ford workers here so employees abroad may receive an equal wage in terms of purchasing power.

Six experts of the Department of Labor's bureau of statistics conducted the survey, canvassing 100 workers in Detroit.

It was disclosed by the survey that 32.3 per cent., or $556.12, of the worker's annual income of $1,719.83 was spent for food. Clothing took 12.2 per cent., while housing expenses aggregated 22.6 per cent., furnishings 5.2 per cent. and miscellaneous expenses 21.7 per cent.

FRED MARTIN PURCHASES FORD COMPANY AT TENINO

Tenino, Wash., June 19.—Fred Martin of this city, has purchased the Tenino Motors, Ford dealership, from L. E. Titus, who operates Ford companies in Olympia, Aberdeen, Hoquiam and Centralia. Martin has been affiliated with the firm here for the last five years and for the last two years has been manager of the concern.

Production - - Engineering - - Factory -

Steel Founders Adopt Code Of Standard Trade Customs

The code of standard trade customs has just been completed under the auspices of the Steel Founders' Society of America. Their codification has been likened to what might be the result were the unwritten or common law of England codified and put in printed form for all to read and follow.

For months the society's industrial research committee, headed by Harold S. Falk, the Falk Corporation, Milwaukee, and including Frank D. Glosser, Commercial Steel Casting Company, Marion, O., and Marshall Post, Birdsboro Steel Foundry and Machine Company, Birdsboro, Pa., have been at work on the project. Questionnaires were circulated, purchasers of steel castings consulted and all existing codes carefully studied.

Only those practices which have come to be generally recognized as standard and in common use by most steel foundries have been included. No arbitrary conditions or rules have been set up prejudicial to either the buyer or seller of steel castings.

The code, as it now stands, represents intensive study and analysis by leading men in the industry and others. The S. F. S. A. board of directors gave careful consideration to each provision of the code and voted its unqualified approval and adoption at a meeting held in Cleveland, O., May 14, 1930.

The new code so clearly sets forth the regulations and conditions under which steel castings are bought and sold that all foundries and their customers will find it easier to transact their business, as there will be complete uniformity in all matters pertaining to common conditions of sale. All foundries are expected to rigidly adhere to the standards set up and all purchasing agents to lend their aid in securing absolute conformity.

When a purchasing agent is in the market for steel castings he now knows that all foundries will treat his order in the same manner in so far as the standard trade customs apply. There is nothing in this code which in any way regulates or standardizes prices or leads to price maintenance. It has been created solely for the purpose of securing uniform usage and definitely recording conditions of sales which will guide the buyers of steel castings and those producers who may not be acquainted with prevailing methods of conducting business.

For many years standard sales contracts have been successfully used in other industries, notably the architectural, automobile and similar industries. A real need has long been felt for such a commercial instrument for the steel foundry industry.

The standard sales contract which has been developed by the Steel Founders' Society meets this need admirably. On the reverse side of the contract form are printed the standard trade customs of the industry, which are made a part of the sales agreement. These forms are furnished to all steel foundries at cost, on application to the Steel Founders' Society of America, Inc. They may be imprinted with the individual foundry's name and address in the manner desired.

In cases where the standard sales contract does not fit the conditions, a standard order acceptance form, which fulfills much the same purpose, has been provided, also a standard quotation sheet. All of these forms are available to steel foundries and purchasers of steel castings at cost.

With the new sales contract, order acceptance form and standard quotation sheet, it is no longer an involved or difficult task to execute a contract or agreement. Business can be transacted in a minimum amount of time and with much less attention to detail. Only the few variable stipulations will require consideration. Purchasing agents will find the new forms a welcome innovation, as they will simplify and accelerate the dispatch of orders for steel castings.

The trade customs will impress even the casual reader as being concise and sound in principle. As they are now established as standard usages for the entire steel foundry industry, it is important that universal acceptance and conformity be accorded them by both buyers and merchandisers of steel castings.

The Steel Founders' Socitey has published a booklet containing the new code and illustrating the standard forms. An adequate supply of these booklets is available and will be sent to anyone desiring a copy, or will be sent to any persons, firms or corporations who ought to have this information on file, provided full names and addresses are supplied. Address all requests to Steel Founders' Society of America, Inc., 932 Graybar Building, 420 Lexington Ave., New York, N. Y.

What Is Expected of the New Standards

The value of the new code and standard sales forms lies in the fact that the conditions of sale are definitely outlined and policies and regulations so clearly set forth that misunderstandings will be avoided, costly delays prevented and disagreements and legal entanglements eliminated.

It is anticipated that the code will promote confidence on the part of buyers in their dealings with the steel foundries and that better deliveries can be made, some time saved by both contracting parties and not a few loose trading methods corrected.

The drafting of these customs is viewed by the industry as a most progressive step. This standardization work is an achievement of no small consequence, and the day seems not far distant when the entire foundry industry will follow the lead of the steel foundry industry and subscribe to one standard code, which will be generally recognized wherever foundry products are bought or sold.

American Welding Adds Exhaust and Tail Pipes

The American Welding and Manufacturing Company, Warren, O., is now manufacturing automobile exhaust and tail pipes in considerable quantities for a number of large automobile manufacturers. This is a new line of production.

These pipes are bent and flanged to any desired angle or shape and are made from strip steel, acetylene gas welded at the seam.

A. S. S. T. to Hold Aircraft Symposium Next Week

Atlantic City, N. J., June 19.—A symposium on aircraft materials will be held at the annual meeting of the American Society for Testing Materials at Haddon Hall here, Friday afternoon and evening, June 27. A group of seventeen summary papers setting forth the present knowledge of the various properties of aircraft materials has been prepared by representative authors. These papers will be presented to lead the discussion in respect to each phase of the subject. It is expected that they will serve to evoke considerable discussion which will bring out additional information on the properties of aircraft materials.

Papers to be presented follow: "Ferrous Metals Used in Airplane Construction," J. B. Johnson, Air Corps, U. S. A., Wright Field; "Structural and Engineering Light Alloys for Aircraft," R. I. Templin, F. V. Hartman and E. C. Hartman, Aluminum Company of America; "The Highly Alloyed Steels in Aircraft Construction," Jerome Strauss, Vanadium Corporation of America; "Strength and Characteristics of Wood Used in Aircraft Construction," G. W. Trayer, Forest Products Laboratory; "Aeronautical Textiles," W. E. Emley, Bureau of Standards; "Corrosion-Prevention Methods as Applied in Aircraft Construction," H. S. Rawdon, Bureau of Standards; "Notes on Aircraft Finishes," H. A. Gardner, Institute of Paint and Varnish Research; "Applications of Stampings, Forgings and Castings in Aircraft Construction," H. G. Runde, Curtiss Aeroplane and Motor Corporation; "Materials for Construction in Aircraft Engines," R. R. Moore, Wright Aeronautical Corporation; "Failures of Aircraft Engine Parts and Causes Thereof," T. T. Neill, Bureau of Standards; "Specification and Materials Control," H. A. Backus, Berliner-Joyce Company; "Mechanical Testing of Aircraft Materials," J. B. Johnson, Air Corps, U. S. A., Wright Field; "Metal Joints in Aircraft Construction," T. W. Downes, U. S. Naval Aircraft Factory; "Procedure Control in Aircraft Welding," H. L. Whittemore, Bureau of Standards, J. J. Crowe Air Reduction Sales Company and H. H. Moss, Linde Air Products Company; "X-Ray Testing of Aircraft Materials," Ancel St. John, consulting physicist; "Photo-Elastic Studies of Aircraft Parts," T. H. Frost, Massachusetts Institute of Technology; "Heat Treatment of Aircraft Parts," H. C. Knerr, Metallurgical Laboratories, Inc.

CHAIN BELT COMPANY ISSUES NEW CATALOGUE

A NEW catalogue, No. 202, on "Bulk Material Handling Conveyors," has just been published by the Chain Belt Company of Milwaukee. This book gives complete engineering data and illustrations on bucket elevators of all types, super-capacity elevators, bin gates, track hoppers and feeders, steel apron and pan conveyors, weigh larries and screw conveyors.

The Rex line also includes chain and transmission equipment, foundry and sand-handling systems and conveying systems for various industries.

The construction equipment line includes cement mixers of all sizes, pavers, pumps, central mixing plants, Motor-Mixers, saw rigs, contractors' elevators and plaster and mortar mixers.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

CLARK

WE could build more, but not better axles than our present

CLARK AXLES

Production demands of the larger passenger vehicle and truck manufacturers have increased our axle production schedules steadily. This marks an ever-growing appreciation of the standard to which we build.

The same precision of design and workmanship produces

CLARK METAL WHEELS with Strength of Steel.

CLARK EQUIPMENT COMPANY
Buchanan Michigan

AXLES
Front & Rear
WHEELS
Single or Dual Tire
CAST STEEL HOUSINGS
TRANSMISSIONS

WISCONSIN AXLES

Wisconsin Axles alone may never close a sale. But they certainly make selling easier —with their reputation for dependable service.

WISCONSIN AXLE CO.
Oshkosh Wisconsin

Cumulative New Commercial Car Registration Statistics, May, 1930

Returns for today: South Dakota and West Virginia

Some of this data has been published previously, but it is given here complete for the convenience of our subscribers

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Commercial Car Registrations do not include buses.

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Dover	Fargo	Federal	Ford	G. M. C.	International	Mack	Paige	Relay	Reo	Republic	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Arkansas			152		7		1		142	8	60	3			1							2	2		2	380	Arkansas
Delaware	6	4	43	1	4	1			88	14	9	1			3		1		3				1			179	Delaware
Illinois	4	11	661	71	61		12	4	911	36	135	18	3	2	19		1	2	5		13	12	15		78	2074	Illinois
N. Dakota			86	6	7		5		113	7	68				11		1				1		2	1	3	311	N. Dak.
S. Carolina		1	134		1				188	4	5	1			1					2	1	1			1	340	S. Car.
S. Dakota			99	3	5		1	1	84	1	44	1			11					1	2	1	3	1	1	259	S. Dakota
Utah			73		8				132		5	2			7		3			1		2	1		5	239	Utah
W. Virginia		4	155	2	38	1	1	3	189	18	57	1	1		9	1	1		2	1			1		5	490	West Va.
Wisconsin			449	37	27	1	4	7	563	29	96	3	1	3	24		1	14	7	4	6	3	10		23	1312	Wisconsin
Totals	10	20	1852	120	158	3	24	15	2410	117	479	30	5	5	86	1	8	16	17	9	23	21	35	2	118	5584	Totals
Ark., 1929		4	193	1	22		1	2	317	5	46				12					2	1	4		1	1	612	Ark., '29
Del., 1929	2		48		12				80	12	14				7	1						2			2	180	Del., 1929
Illinois, '29	6	13	784	88	121		6	15	1077	52	200	32			49	1		5	2		13	19			119	2602	Ill., 1929
N. Dak., '29			155	1	20				156	13	101			1	9		4				5			2	3	470	N. D., '29
S. Car., '29			203		18		2	9	253	3	11	1			2	1						3			1	507	S. C., 1929
S. Dak., '29			131	1	18		4		137	10	84				18		3			2				1	2	412	S. D.
Utah, 1929			52		8		1		86	1	5	1			6		4					2			2	168	Utah, '29
W. Va., '29	1	5	208	4	42			2	226	11	50			4	21	1	1		2	2		6		3		589	W. Va.
Wis., 1929		1	627	36	84		5	15	1047	48	161	8		3	58	1	7	16	8	8	29	14		4	33	2216	Wis., 1929
Totals	9	23	2401	131	345	*	22	43	3379	155	672	42	*	8	182	5	19	21	12	14	49	50	*	11	163	7756	Totals

*Not in production at that time.

Equipment - - - Development

Meet the Chief Engineers

TO acquaint its readers with the important, but unsung, members of the automotive fraternity—the engineers who design and build the nation's cars—Automotive Daily News is publishing a series of brief biographies of the chief engineers of companies producing automobiles, automotive equipment, parts and accessories. These biographies will cover the training and experience of leading engineers and their outstanding contributions to the progress of our industry.

GEORGE BURT INGERSOLL, chief engineer of the Federal Motor Truck Company, was born in 1887 at Farmington, Michigan. During boyhood he was imbued with the intense desire to study both the professions of engineer and law. With these objectives, at 16 years of age he entered the shop of the Standard Tool Company, Cleveland, Ohio.

Shortly thereafter he entered into automotive shop practice at the American Ball eBaring Company and the Winton Motor Company of the same city.

After acquiring shop practice he spent several years acquiring experience in tool design with the Weston Mott Company of Flint, the Studebaker Company of De-Detroit and the National Motor Truck Company of Bay City, Michigan. With this ground work of practical experience he began the study of motor truck design, first becoming connected for three years with the engineering department of the H. E. Wilcox Motor Car Company of Minneapolis. In 1915 he joined the engineering department of the Federal Motor Truck Company of Detroit, Michigan.

In 1917 he was called to Washington to aid in the design of special motor truck equipment for the War Department. After completing the special work for the quartermaster's department he was invited to join the aviation engine design section of the signal service of the U.S. War Department, where he remained until the signing of the Armistice. After the close of the war he spent two years with the engine design section of the Lincoln Motor Car Company of Detroit.

In 1921, M. L. Pulcher, president of the Federal Motor Truck Company, appointed Mr. Ingersoll to the position of assistant chief engineer. In 1924 he was advanced to the position of chief engineer, which position he occupies at the present time.

G. B. INGERSOLL

In 1922, Mr. Ingersoll was graduated from the Detroit College of Law, having pursued his studies in the legal course in addition to his engineering duties. In 1923, he satisfactorily passed the Michigan state examination for membership in the Michigan Bar Association and was admitted to practice in the courts of Michigan. Also, as a registered U. S. patent attorney, he handles patent cases before the U. S. Patent Office.

He is an outstanding member of the Society of Automotive Engineers. In his present position as Federal's chief engineer, he has designed a great number of motor truck models and motor truck accessories. His hobby is writing patent specifications and working around his summer home at Colchester, Ont., Canada, on Lake Erie.

New Device Simplifies Radiator Testing

A simple device for testing the correct operation of all forms of radiators has been placed on the market by the Meritam Company, 1955 West 112th St., Cleveland, O.

Up to the present time there has been no quick way of finding out if the passages of the radiator were blocked, except where the condition was so bad that steam blew out of the top.

The new device provides for easy and rapid testing of any type of radiator and requires only one man to operate it. The device consists of a 110-gallon tank, a Meriam floating flow meter and a very flexible two-inch hose pipe for connecting up the radiator to be tested by means of a slip-on adapter. The valve for the control of the water flow is a simple and light aluminum screw clamp which collapses the hose against a rubber saddle vulcanized to the inside of the control point.

A special discharge orifice is built into the bottom of the tank and a small rubber pipe connects from the outlet side of this orifice to a Meriam flow meter manometer, or flow-indicating tube. The flow-indicating tube and its five-foot plainly marked scale are mounted on a float in the tank itself. By this method the height of the water in the glass tube will always show the correct flow in gallons per minute irrespective of the water level in the tank. An ordinary closet valve connected to the water supply refills the tank after use.

To make the test, the hose is connected to the top outlet of the radiator, the bottom outlet being left wide open. The screw clamp valve on the hose is then opened up until the radiator is full without running over. The rate of flow is read off from the flow tube scale directly in gallon flow per minute. Comparison with the standard radiator chart shows immediately whether the radiator passages are blocked, and, if so, to what extent.

To the garage and service station of fair size the device has many practical advantages, not the least of which is that the customer may be convinced as to whether or not flushing or repair service is needed.

N. J. Public Service Wins Coffin Award

THE Public Service Electric and Gas Company, of Newark, N. J., has developed a system through inter connection and other engineering improvements, benefiting both the company and its customers. As a direct result, the generating stations of the company were able to produce 65,000,000 additional kilowatt-hours of energy in 1929, at a decrease in cost of $565,000; and the benefit was passed on to the customers in lower electric rates.

This was one of the outstanding achievements which led to the company receiving the Charles A. Coffin Foundation award at the annual convention of the National Electric Light Association at San Francisco yesterday. The committee which granted the award included M. S. Sloan, president of the N. E. L. A.; P. S. Arkwright, chairman of the public policies committee of the association, and Dr. S. W. Stratton, chairman of the board of trustees of Massachusetts Institute of Technology.

The Charles A. Coffin prize award annually was established by the General Electric Company in honor of the company's founder.

Hercules Products,, Inc., Adds Refrigerator Body to Line

Evansville, Ind., June 19.—Hercules Products, Inc., builder of commercial car bodies, is introducing a new model to its line in the Hercules No. 2927 Refrigerator panel body, for which large orders are reported by Hercules officials from meat packing industries in Chicago.

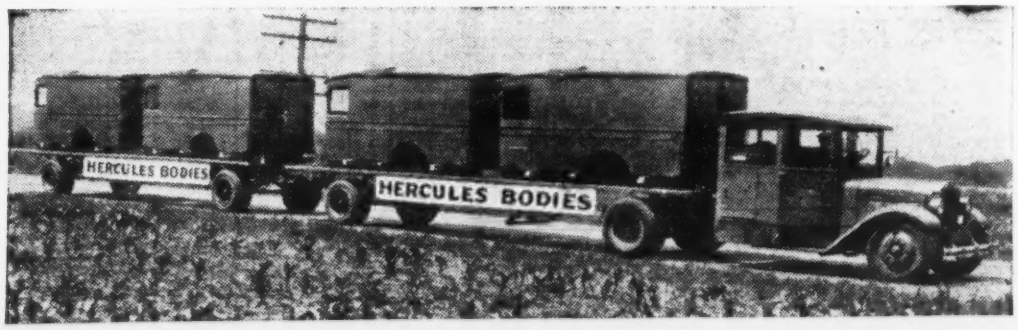
The new model, which carries points of similarity in exterior lines to the No. 2989 extra wide panel body, comprises three compartments —driver's compartment, refrigerator compartment and general purpose compartment.

The driver's compartment is equipped with an adjustable seat and back on the driver's side, full length seat house, and a hinged board next to the driver's seat to fill out the top of the seat house.

The refrigerator compartment is equipped to insure average temperature of 40 to 55 degrees, and has loading space 48 7/8 inches length, 49 inches in width, and 53 inches in height. The refrigerator compartment is entered by a 22-inch door on the right side and is sealed by expansion strips forced into place by springs around the door, and is fitted with inside locking device and compression handle for padlock on the outside. The refrigerator door is fitted with a 12-inch hinged baffle to keep cold air from rushing out when the door is opened. The brine tank, located on the left wall, is fitted with a hatch in the deck for easy filling, also a drip pan and drain pipe to drain the tank through the bottom and running board. The brine tank is made for mixture of crushed ice and salt. All exposed parts are either cadmium plated or hot dipped galvanized to prevent corrosion. This compartment is made to store perishable food products.

The general purpose compartment to handle non-perishable products is uninsulated. Doors on the rear of the body are solid, without glass. Both compartments are fitted with a dome light controlled by a single switch.

Hercules Ships by Truck



HURCULES PRODUCTS, INC., commercial car body building division of Servel, Inc., has adopted the truck and trailer method of shipping bodies from factory to distributor. The outfit operates on regular schedule between Evansville, Ind., and Chicago, 310 miles, and is seen with a load of the new refrigerator bodies which Hercules is building for transportation of perishable foods

Large Plant Management

THIS paper on plant management was presented at the semi-yearly meeting of the American Society of Mechanical Engineers in Detroit this week by A. B. Reynders, works manager of the Westinghouse Electric and Manufacturing Company, Springfield, Mass. The complete paper has been run serially in Automotive Daily News, and is concluded in this issue.

An equal amount of effort on the part of the management has not been used in providing an incentive to the supervisory force. Of late, however, in many plants this has been recognized and a supervisory bonus has been installed. This bonus is usually based upon a saving of expense, or a saving in the direct labor in the product. It is obvious that some standard must be set up as a basis for this saving. While it has been argued that expense should be kept in proportion to the productive labor, a little reflection will disclose that it is an impossibility to obtain; therefore a bonus based on savings made in direct proportion to the productive labor is impossible to obtain when productive labor falls below normal, and is easy to obtain when productive labor goes above normal. The answer is to measure the expense on the basis of a curve rather than a straight line. This is logical. Why should the supervisory force be cut in half if productive labor is cut in half? One would not think of selling half of the machinery or tearing down half of the buildings to reduce the depreciation account by one-half. It is therefore logical to retain more than one-half of the supervisory force when productive labor drops to one-half. On the other hand, it is not necessary to increase the expense by one-half should productive labor increase one-half over normal. A bonus system has been devised based on a curve, and whether business is good or bad it is possible for the supervisory force to earn an extra amount if they save in expense over the allowed amount as shown by a curve for the different loads. This has had a tremendous effect in reducing costs, principally through overhead. Direct savings in cost can also be made if a foreman or other supervisor devises a new tool or a new grouping of tools which reduces the productive labor. He is entitled to a portion of the saving over a period of time. All of this means that an incentive system for both worker and supervisor acts as a substitute for the one-time personal contact between master and workman.

As I have just said that the relationship between master and workman has been replaced by a bonus system to secure low cost, so it has been found necessary to replace the same contact which secured interest and pride of workmanship by other agencies. A man on the bench always appreciates an interest displayed by the man higher up in his personal affairs. This applies particularly to his private affairs, his health, the health of his family, the progress his children are making in school, etc. In a large plant, this interest on the part of the men higher up is lacking. It must be replaced, and, again, the organization does the replacing. The welfare department has been modified considerably since the paternalistic days following the war. The conclusion has been reached that welfare work should take care of the important issues of life, employment, sickness, accident, old age and death, also insurance for the survivors. Some of these, such as accident compensation, industry has had to undertake, due to legal requirements of the state in which the industry is located. Unemployment is still unsolved although large industries are more apt to furnish all-year-around employment than the smaller concerns.

The age limit has received considerable publicity, but in the actual operation of a large plant, a man is rarely let go because of age. It is true that he may, due to physical infirmities, be unable to carry on his old work, but usually some lighter work is found, even though the pay may be reduced. Ultimately, he is retired on pension. In this respect, the larger industry is more humane than the smaller one which does not have the necessary financial resources.

Employees' committees or factory committees composed of representatives of the employers and the employees, to look after the welfare of the employees, have also received much publicity. In a plant of 5,000 or less employees, such committees are not necessary. Too frequently they are not in possession of all facts connected with shop problems, and they develop into fault-finding groups, become involved in wage controversies and attempt to justify their existence to their fellow workmen by spectacular action rather than by real worth-while work. The functions they are supposed to perform can easily be handled by the foremen, with the understanding that the workman having a grievance can always appeal to a higher authority. In a plant of 10,000 or more employees, such a committee can perform a real function, if carefully selected, as the management is further separated from the men. While the man to man contact may be lacking in the large industry, a more rational treatment of the personnel problem is possible.

Summary—Large-plant management consists in controlling the personnel by arranging them in groups or departments, each to perform a specific duty under the supervision of a specialist. The combined efforts should result in a low-cost, high-quality product. The number of departments must be sufficient to cover all the activities involved in the production of the apparatus from the time an order is negotiated until the apparatus is shipped. The duties of each individual, group or department should be defined clearly so as to prevent overlapping with resulting confusion. On an average one department head or group leader should supervise not more than ten men.

To be sure that each department performs its functions, a loading or bogey, or a budget, must be set and thereafter regular reports in concise form of the actual accomplishment must be made as soon as possible after the accomplishment. Cost keeping and cost reduction are of paramount importance in any size plant. An incentive system for paying both worker and supervisor is an economic necessity to accomplish this. Expense control must be on a curve basis rather than a straight line.

A cost-reduction department composed of a group of technical men with years of shop experience whose sole duty is to study designs, processes, tools, and layouts, to save pennies, is almost a necessity in a large manufacturing plant engaged in producing highly competitive products. It is conceded that the large plant with its highly organized departments, functioning through written instructions, is slower to act than the small plant with its small organization. This slowness can be partially countered by special departments within the larger organization, patterned after the small organization. Such departments should be self-contained in personnel and equipment, and as free from regular system as possible.

Low costs on special and small quantity apparatus which are secured by the small manufacturer can be obtained by the large manufacturer by also organizing special self-contained departments, patterned after the small plant. The personal contact between the management and the worker which is very close in the small plant is replaced in the large plant by a a welfare department, which looks after the major issues in the life of the worker, namely, employment, sickness, accident, old age, death, and insurance for survivors.

CURTISS-WRIGHT PLANS TESTS OF HELICOPTER

New York, June 19.—Tests will be begun shortly on the Curtiss-Bleecker helicopter which has been under secret development in the Garden City factory of the Curtiss Aeroplane and Motor Company for four years.

This unusual machine is now in a hangar at the Curtiss-Wright Valley Stream Airport receiving final finishing touches before the start of a long series of tests to determine its efficiency and performance characteristics.

PRATT & WHITNEY TO GET BIG GOVERNMENT AWARD

Hartford, Conn., June 19.—A contract involving between $2,000,000 and $3,000,000 for more than 400 Wasp and Hornet motors is scheduled to be awarded to the Pratt & Whitney Aircraft Corporation of Hartford by the secretary of war, according to the announcement made here today.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS OF

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Am. La France Chief	2	3650	Own	6	3¾x5	33.0	Pw	Str	Vac	DR	Own	C	4	Tim	Wo	31.2	4	D	156	6200	32x6	32x6D
Am. La France W	3-4	3950	Own 2 R	4	4¼x6	28.9	CS	Zen	Vac	AB	Own	C	4	Own	2R	47.4	4	R	160	7200	S36x5	S36x5D
Am. La Fran. Chieftain	3-4	5500	Own	6	4⅛x5⅛	40.8	Pw	Zen	Vac	DR	Own	C	4	Tim	Wo	28.8	4	D	175	7200	S36x8	36x8D
Am. La France V	5	5500	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	Wo	5[illegible]4	4	R	165	9800	S36x5	S40x6D
Am. La France Z	6½	5750	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	Wo	63.5	[illegible]	R	165	10000	S36x7	S40x7D
Am. La France U	7½	6000	Own 5 R	4	4¾x6	36.2	CS	Zen	Vac	AB	Own	C	4	Own	—	63.5	4	R	165	10500	S36x7	S40x8D
Am. La Fran. Big Chief	6	6725	Own	6	4½x6	48.6	Pw	Zen	Vac	DR	Own	C	4	Own	2R	32.8	4W	D	226	10600	S40x8	S40x8D
Autocar A	1½	2700	Her	6	4 x4½	38.4	Pb	Str	Vac	DR	Br-L 51	U	4	Own SA	Sp	24.3	4	R	150	5060	32x6	32x6
Autocar D	2	3000	Her	6	4 x4½	38.4	Pb	Str	Vac	DR	Br-L 51	U	4	Own SD	2R	30.9	4	R	150	5300	32x6	32x6D
*Autocar H	3	3750	Own	4	4½x5½	32.4	CS	Str	Gra	AB	Own T	U	4	Own H	2R	44.3	R	R	114	6550	34x5S	36x10S
*Autocar SH	3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Gra	RB	Own T	U	4	Own H	2R	40.5	R	R	114	6770	34x7	34x7D
*Autocar SHA	3	4400	Own	6	4¼x4¾	43.4	Pw	Str	Gra	RB	Own T	U	4	Own TE	2R	40.5	R	R	138	6770	34x7	34x7D
Autocar SCH	3	4300	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own H	2R	40.5	R	D	157	6860	34x7	34x7D
Autocar SCHA	3	4400	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own TE	2R	40.5	R	D	177	6860	34x7	34x7D
*Autocar HS	3½	4100	Own	4	4½x5½	32.4	CS	Str	Gra	AB	Own T	U	4	Own H	2R	44.3	R	R	114	7200	34x6S	36x12S
*Autocar SHS	3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own C	2R	56.2	R	R	114	7900	40x8	40x8D
*Autocar SHSA	3½	4900	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own TF	2R	56.2	R	R	138	7900	40x8	40x8D
Autocar SCHS	3½	4800	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own C	2R	56.2	R	D	157	8180	40x8	40x8D
Autocar SCHSA	3½	4900	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	4	Own TF	2R	56.2	R	D	177	8180	40x8	40x8D
Autocar TEA	3½	5350	Own	6	4¼x4¾	43.4	Pw	Str	Vac	RB	Own T	U	12	Own TE	2R	45.0	4	D	192	8900	36x8	36x8D
Autocar TFA	5	6100	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Own T	U	12	Own TF	2R	45.0	4	D	192	9300	38x9	38x9D
Autocar C	5	5500	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Own B	C	4	Own C	2R	46.2	R	D	172	9500	42x9	42x9D
Autocar F	7½	6800	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Br-L 70	C	7	Tim	Wo	94.0	4	D	173	11000	36x7S	40x8DS
Autocar G	10	9000	Own	6	4½x4¾	48.6	Pw	Str	Vac	RB	Br-L 70	C	7	Tim	Wo	97.7	WB	D	171	13000	36x8	36x8D
Brockway 65	1	1195	Con 27 B	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 36000	Sp	21.3	4	Tr	137	3400	30x5	30x5
Brockway 75	1¼	1290	Con 27 B	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L 20-4	U	4	Col 36000	Sp	25.6	4	Tr	137	3450	32x6	32x6
Brockway 90	1½	1525	Con 27 B	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Aut	Br-L 20-4	U	4	Col 55000	Sp	25.6	4	Tr	149	3850	32x6	32x6
Brockway JR	1¼	1195	Wis C	4	3¾x5	22.5	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 36001	Sp	21.3	4	Tr	130	3100	30x5	30x5
Brockway E 45	1½	1765	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	L-N	Br-L 30	U	3	Col 55001	Sp	21.0	4	Tr	139½	3650	32x6	32x6
Brockway KW	3	4100	Wis H	6	4 x5	38.2	Pb	Zen	Vac	L-N	Br-L 51	U	4	Wis 1228	2R	33.7	R	Dr	170	6920	34x7	34x7D
Brockway R	4	4200	Con L 4	4	4½x5½	32.4	Pw	Zen	Vac	Eis	Br-L 55	C	4	Tim 66600	Wo	46.8	R	R	164	7890	36x5S	36x12S
Brockway RT	4	4850	Con B 7	4	5 x6	40.0	Pw	Zen	Vac	Eis	Br-L 60	C	4	Tim 66700 S	Wo	53.5	RV	Dr	175	8100	36x5S	36x12S
Brockway 120	2	1990	Con 30 B	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L 35	U	4	Tim 54100	Sp	—	4	Tr	156	5200	32x6	32x6D
Brockway 140	2	2495	Con 30 B	6	4 x4⅛	38.4	Pb	Zen	P	Aut	Br-L 35	U	4	Wis 4916 L	2R	—	4W	Tr	156	5500	32x6	32x6D
Brockway 290	7	7250	Con 36 B	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L 70-7	C	7	Tim 68703 D	Wo	—	4W	Dr	182	10750	38x7	40x14S
Brockway 640	10	9700	Con 36 B	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L 70-7	C	7	Tim S W 400	Wo	—	4W	Dr	212	14000	38x7	36x10S
Brockway T	5-7	5200	Con B 7	4	5 x6	40.0	Pw	Zen	Vac	Eis	Br-L 60	C	4	Tim 68700	Wo	53.5	R	Dr	175	10065	36x6S	36x14S
Chevrolet	½	365	Own	6	3⅛x3¾	26.3	CS	Car	P	DR	Own	U	3	Own	Sp	13.61	4	R	107	1835	4.75x19	4.75x19
Chevrolet	1½	520	Own	6	3⅛x3¾	26.3	CS	Car	P	DR	Own	U	4	Own	Sp	33.46	4	R	131	2375	30x5	30x5
Commerce SRS 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Col 54028	Sp	25.5			142	3900	30x5P	30x5P
Commerce SRS 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Tim 54000	Sp	29.2			162	4300	30x5P	30x5DP
Commerce SR 40	1½	2990	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8			168	4700	34x5P	34x5D
Commerce SRS 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	Pb	Zen	Vac	Aut	Br-L 20	U	4	Tim 54000	Sp	29.2			162	4500	32x6P	32x6D
Commerce SR 40	2	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8			168	4900	36x6	36x6D
Commerce SR 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Tim 63704	Wo	34.8			163	5100	36x6P	36x6D
Commerce SR 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0			168	7000	36x6P	36x6D
Commerce SR 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Ful	U	5	Tim 65706DH	Wo	63.0			175	7100	36x6P	36x6D
Commerce SR 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	98.2			175	8200	36x6S	36x12S
Commerce SR 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 66700DP	Wo	98.2			175	8400	36x6S	36x12S
Commerce SR 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	Pb	Zen	Vac	Aut	Br-L	C	7	Tim 63700DP	Wo	95.0			172	9600	36x6S	40x14S
Day Elder M F	1¼	1345	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L	U	4	Tim 52000 H	Sp	24.2	4	D	135	3500	30x5	30x5
Day Elder G F	1½	2050	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L	U	4	Tim 54000 H	Sp	28.3	4	D	156	4400	30x5	30x5D
Day Elder H F	2	2500	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	DR	Br-L 35	U	4	Tim 63702 H	Wo	40.7	4	D	156	4900	S34x4	S34x7
Day Elder J F	3	3900	Con 18 R	6	4 x4½	38.4	Pb	Zen	Vac	DR	Br-L 51	U	4	Tim 65001 H	Wo	41.5	4	D	156	7000	34x7	34x7D
Day Elder K F	4-5	5000	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	Vac	DR	Br-L 60	C	4	Tim 66702 DH	Wo	55.2	4	D	162	9200	S36x5	S36x12
Day Elder N 6 W	7	6000	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	Vac	DR	Br-L 60	C	7	Tim SW 200 H	Wo	73.6	6	D	204	10000	34x7	34x7D
Diamond T 200	1	785	Bud	4	3¾x4½	22.5	Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	128½	3050	30x5	30x5
Diamond T 215	1	885	Bud	6	3⅜x4	27.3	Pw	Zen	P	Aut	W-G	U	4	Cla	Sp	—	4	D	135⅛	3150	30x5	30x5
Diamond T 290	1½	1475	Her WXA 2	6	3½x4½	29.4	Pb	Zen	Vac	Aut	Cov	U	4	Col	Sp	—	4	D	156¼	4160	30x5	30x5D
Diamond T 303	2	1745	Her WXB	6	3¾x4½	33.7	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	160¾	4850	32x6	32x6D
Diamond T 351	2½	2250	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	—	4	D	168	5600	32x6	32x6D
Diamond T 503	2½	2660	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Wo	—	4	D	174	6200	34x7	34x7D
Diamond T 506	2½	2820	Her WXC	6	4 x4½	38.4	Pb	Zen	Vac	Aut	Cov	U	4	Wis	2R	—	4	D	172½	6300	34x7	34x7D
Diamond T 602	3	3440	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	4	D	169½	7500	36x8	36x8D
Diamond T 606	3	3500	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	U	4	Wis	2R	—	4	D	186	7500	36x8	36x8D
Diamond T 700	3½	3740	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Cov	C	4	Tim	Wo	—	R	D	162	8100	S36x5	S36x10
Diamond T 801	4	4140	Her YXC	6	4⅜x4¾	45.9	Pb	Zen	Gra	Aut	Br-L	C	7	Own	Wo	—	6WH	D	189½	8300	36x8	4 wh 36x8
Diamond T 1000	5	4420	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	4	Tim	Wo	—	R	D	170½	9700	S36x6	S40x12
Diamond T 1200	6	5600	Her YXC 2	6	4½x4¾	48.6	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4RW	D	180	11000	34x7	4 w h 34x7D
Diamond T 1600	8	6220	Her YXC 3	6	4⅝x4¾	51.3	Pb	Zen	Gra	Aut	Br-L	C	7	Tim	Wo	—	4W	D	190	11700	36x8	4 wh 36x8D
Diamond T 2500	10-12	8000	Wak 6 RB	6	5 x5¾	60	Pb	Zen	Gra	Mag	Br-L	C	7	Tim	Wo	—	4W	D	194	13100	S36x7	4 wh 36x12S
Dodge Bros. U-1	½	545	Own	4	3⅜x4¼	21.3	Pb	Car	Vac	NE	Own	U	3	Own	Sp	14.25	4	D	109	1900	5.00x20B	5.00x20B
Dodge Bros. U-1	¾	695	Own	4	3⅜x4¼	21.3	Pb	Car	Vac	NE	Own	U	3	Own	Sp	21.68	4	D	124	2260	5.50x20B	5.50x20B
Dodge Bros. U-1	1	795	Own	4	3⅜x4¼	21.3	Pb	Car	Vac	NE	Own	U	4	Own	Sp	36.136	4	D	133	2590	6.00x20B	32x6
Dodge Bros. DA1	¾	795	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	3	Own	Sp	19.21	4	D	124	2360	5.50x20B	5.50x20B
Dodge Bros. DA1	1	895	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	33.45	4	D	133	2690	6.00x20B	32x6
Dodge Bros. DA1	1	1095	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	140	2955	30x5	30x5
Dodge Bros. DA1	1½	1365	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	150	3695	32x6	32x6
Dodge Bros. DA1	1½	1415	Own	6	3⅜x3⅞	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	165	3810	32x6	32x6
Dodge Bros. DB1	2	1595	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	150	3930	32x6	34x7
Dodge Bros. DB1	2	1645	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	36.83	4	D	165	4070	32x6	34x7
Dodge Bros. DB1	3	1845	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	46.31	4	D	135	4235	32x6	32x6D
Dodge Bros. DB1	3	1895	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	41.43	4	D	165	4520	32x6	32x6D
Dodge Bros. DB1	3	1945	Own	6	3⅜x4½	27.3	Pb	Zen	Vac	NE	Own	U	4	Own	Sp	46.31	4	D	185	4715	32x6	32x6D
Dover	¾	445	Own	6	2⅞x4½	18.2	CS	Mar	Vac	Aut	Own	U	3	Own	Sp	17.8	4	4	110	2150	30x5	31x5.50
Durant Com. Chassis	½	495	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	C	3	Own	Sp	16 16	4	4	107	1670	28x4.75	28x4.75
Fargo Packet	½	545	Own	6	3 x4½	21.6	Pb	Str	Vac	NE	Own	U	3	Own	Sp	14.29	4	Tr	——	1835	5.00x19	5.00x19
Fargo Clipper	¾	725	Own	6	3⅛x4¼	23.4	Pb	Str	Vac	DR	Own	U	3	Own	Sp	15.53	4	Tr	——	2325	5.50x18	5.50x18
Fargo Freighter	1	795	Own	6	3 x4½	21.6	Pb	Str	Vac	NE	Own	U	4	Own	Sp	37.19	4	Tr	——	2785	6.00x20	32x6
Federal 4FW	1	980	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	W-G T9	U	4	Cla B370	Sp	40.8	4	Tr	127	2975	30x5	30x5
Federal E6	1	1099	Con 17 E	6	3⅜x4	27.3	Pb	Zen	P	DR	W-G T9	U	4	Cla B370	Sp	34.6	4	Tr	132	3120	30x5	30x5
Federal D	1-1½	830	———	4	3⅞x4¼	24	Pb	—	P	—	———	—	-	———	—	—	—	—	131	3060	6.00x20	32x6
Federal F7	1½	1525	Con 16 C	6	3⅜x4⅜	27.3	Pb	Zen	P	DR	Own	U	4	Tim 52005H	Sp	24.3	4	Tr	132	3765	30x5	30x5D
Federal A6	2	1855	Con 16 C	6	3⅜x4⅜	27.3	Pb	Zen	Vac	DR	Own	C	4	Cla B610	Sp	38.5	4	Tr	151	4580	32x6	32x6D
Federal A6T	2½	2185	Con 16 C	6	3⅜x4⅜	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 58000H	Sp	41.3	4	Tr	151	4950	32x6	32x6D
Federal A 6 T W	2½	2360	Con 16 C	6	3⅜x4⅜	27.3	Pb	Zen	Vac	DR	Own	C	4	Tim 65001 H	Wo	42.0	4	Tr	151	4950	32x6	32x6D
Federal T10	2½-3	2740	Con 16 R	6	4 x4¼	38.4	Pb	Zen	P	DR	Own	C	4	Tim 58000H	Sp	36.3	4	Tr	165	6600	34x7	34x7D
Federal T10W	2½-3	2915	Con 16 R	6	4 x4⅛	38.4	Pb	Zen	P	DR	Own	C	4	Tim 65001H	Wo	44.0	4	Tr	165	6600	34x7	34x7D
Federal U6	3-3½	3860	Con 18 R	6	4 x4½	38.4	Pb	Str	P	DR	Br-L 55	C	7	Tim 65706HP	Wo	64.6	4	D	165	7210	34x7	34x7D
Federal 4C6A	4-5	4735	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704HP	Wo	73.6	4	D	192	8330	36x8	36x8D
Federal 4C6AB	4-5	4960	Con 20 R	6	4⅛x4¾	40.8	Pb	Zen	P	DR	Br-L 55	C	7	Tim 66704TWP	Wo	73.6	4	D	192	8600	36x8	36x8D
Federal X8	7½	5085	Con B 7	4	5 x6	40	Pw	Zen	Vac	AB	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	9750	36x6S	40x14S
Federal X8R	7½	5810	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	DR	Br-L 60	C	7	Tim 68700DP	Wo	110.9	R	D	162	10000	40x8	40x8D
Ford AA	1½	520	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	131½	2792	6.00x20	32x6
Ford AA	1½	545	Own	4	3⅞x4¼	24.0	Sp	Zen	Gra	Own	Own	U	4	Own	St	42.24	4	R	157	2570	6.00x20	6.00x20D
F. W. D.—H	1½	3300	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Cotta	C	4	Own	St	38.1	4	R	121	5300	34x7	34x7
F. W. D.—H 6	2	3425	Wak	6	3½x4½	29.4	Pb	Zen	Vac	Eis	Br-L	U	4	Own	St	35.0	4	R	133	5500	34x7	34x7
F. W. D.—BTL 4	2	3900	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	34.7	4	R	120	6000	36x8	36x8
F. W. D.—HH 6	2½	4000	Wak	6	3¾x4½	33.7	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	101.0	4	R	133	5700	36x8	36x8
F. W. D.—B	3	4200	Own	4	4¼x5½	36.1	Pb	Str	Gra	Eis	Own	C	3	Own	St	35.6	4	R	124	6460	36x6S	36x6S
F. W. D.—B 5	3	4525	Own	4	4¾x5½	36.1	Pb	Str	Gra	Eis	Own	C	5	Own	St	34.6	4	R	132	6800	36x6S	36x6S
F. W. D.—B T	3	4742	Own	4	4¾x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	101.0	4	R	133¾	7700	40x7S	40x5SD

1930 COMMERCIAL CARS BUILT IN THE UNITED STATES

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
F. W. D.—U 4	3	4575	Own	4	4⅝x5½	36.1	Pb	Str	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7000	36x6S	36x6S
F. W. D.—U 6	3½	4575	Wak	6	4 x4¾	38.6	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7200	36x6S	36x6S
*F. W. D.—X 6	6	6500	Wak	6	4¼x4¾	43.3	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	4	4	170	9500	36x8	36x8
Garford Series S 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.5	4	D	142	3900	30x5	30x5
Garford Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4300	30x5	D30x5
Garford Series 40	1½	2990	Bud D S 6	6	3⅝x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4700	34x5	D34x5
Garford Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4500	32x6	D32x6
Garford Series 40	2	3240	Bud D S 6	6	3⅝x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4900	36x6	D36x6
Garford Series 40	2½	3240	Bud D S 6	6	3⅝x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	5100	36x6	D36x6
Garford Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7000	36x6	D36x6
Garford Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7100	36x6	D36x7
Garford Series 80	3½	5250	Bud L A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8200	S36x6	S36x12
Garford Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8400	S36x6	S36x14
Garford Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	9600	S36x6	S40x14
Gen. Mot. T11-1001	*3800	625	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Pontiac	Sp	14.7	4	4	109⅜	1980	5.00x19B	5.50x19B
Gen. Mot. T15-1501	*5400	695	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51500	Sp	16.09	4	4	130	2625	5.50x20B	5.50x20B
Gen. Mot. T17-1701	*5500	735	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2650	6.50x20B	6.50x20B
Gen. Mot. T17-1707	*6500	750	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Own	U	3	Tim 51505	Sp	16.04	4	4	130	2670	5.50x20B	32x6
Gen. Mot. T19-2201	*6300	895	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2850	5.50x20B	32x6
Gen. Mot. T19-2214	*8500	985	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	34.45	4	D	130	2925	30x5	30x5D
Gen. Mot. T25-2501	*6800	1235	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3375	6.00x20B	7.50x20B
Gen. Mot. T25-2509	*8500	1280	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Tim 5261	Sp	29.62	4	D	130	3425	30x5	30x5D
Gen. Mot. T30-3206	*9000	1555	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4450	6.00x20B	8.25x20B
Gen. Mot. T30-3203	*11000	1605	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1617	Sp	28.6	4	D	141	4525	32x6	32x6D
Gen. Mot. T42-4206	*10600	1735	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4575	7.00x20B	9.00x20B
Gen. Mot. T42-4203	*14000	1960	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat 1717	Sp	33.38	4	D	141	4905	36x6	36x6D
Gen. Mot. T44-4401	*12000	1965	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	4825	32x6	32x6D
Gen. Mot. T44-4404	*15000	2095	Buick	6	3⅛x4⅝	28.3	Pb	Mar	P	DR	Mun	U	4	Eat T44DR	2R	40.89	4	D	141	5095	34x7	34x7D
Gen. Mot. T60-6202	*16500	3035	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	34x7	34x7D
Gen. Mot. T60-6205	*18500	3125	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Mun	U	4	Tim 65706	Wo	52.53	4	D	154¼	6925	9.00x20B	9.00x20DB
Gen. Mot. T82-8202	*19000	3795	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	84.91	4	D	155	7500	9.00x20B	9.00x20DB
Gen. Mot. T82-8207	*22000	4070	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim 66704	Wo	84.91	4	D	155	7850	38x7	38x9D
Gen. Mot. T90-9001	*23000	5885	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	75.04	WR	D	185¼	9400	7.50x20B	7.50x20D
Gen. Mot. T90-9004	*28000	6055	Buick	6	3¾x5	33.7	Pb	Mar	P	DR	Br-L	C	5	Tim SW-200	Wo	75.04	WR	D	185¼	9775	8.25x20B	8.25x20DB
*Gramm B	1½	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Zen	Vac	Aut	Cov	U	4	Tim	Sp	34.3	4	Tr	140	3800	30x5	30x5D
*Gramm C	2	1795	Lyc ASA	6	3⅝x4½	31.54	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	31	4	Tr	160	4820	32x6	32x6D
*Gramm D	2½	2195	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Cov	U	4	Tim	Sp	33	4	Tr	160	5100	32x6	32x6D
*Gramm E	3	2595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	35	4	R	150	5200	34x7	34x7D
*Gramm EY	3	3595	Con 20 R	6	4⅛x4¾	40.80	Pb	Zen	P	Aut	Ful	U	4	Tim	Sp	30	4	D	190	6750	32x6	32x6D
*Gramm GY	4	4345	Con 21 R	6	4⅜x4¾	45.9	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	28	4	D	210	7200	34x7	34x7D
*Gramm HY	5	6545	Con 16 H	6	4¾x5¾	54.15	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	25.2	4	D	236	9600	36x8	36x8D
*Gramm O-35	3	3595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	71.2	D	R	153	7200	36x5S	36x10S
*Gramm O-45	4	3995	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	75.8	D	R	153	7700	36x5S	36x12S
*Gramm O-60	5	4745	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	C	8	Wis	2R	78.4	D	R	153	8800	36x6S	36x14S
*Gramm T-38	3	3595	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	45	D	R	153	7200	36x5S	36x10S
*Gramm T-48	4	3995	Lyc TS	6	3⅞x5	36	Pb	Zen	P	Aut	Ful	U	4	Wis	2R	47	D	R	153	7700	36x5S	36x12S
Indiana 64	1	1195	Con 27 B	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	20	U	3	Col 36020	Sp	21.3	4	Tr	137	3435	30x5	30x5
Indiana 74	1¼	1290	Con 27 B	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	20	U	4	Col 36020	Sp	25.6	4	Tr	137	3450	32x6	32x6
Indiana 89	1½	1525	Con 27 B	6	3⅜x4⅝	27.3	Pb	Str	Vac	Aut	Br-L	20	U	4	Col 55002	Sp	25.6	4	Tr	149	3650	32x6	32x6
Indiana 11	1¼	1425	Her OX	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	31	U	3	Cla B 365	Sp	24.48	R	R	129½	3500	30x5	30x5
Indiana 111	1½	1630	Her OX	4	4 x5	25.6	Pb	Str	Gra	Aut	Br-L	31	U	3	Cla B 509	Sp	26.4	R	R	129½	3600	30x5	32x6
Indiana 111 XW	2	1850	Her OXP	4	4 x5	25.6	Pb	Str	Vac	Eis	Br-L	35	U	4	Wis 4611	2R	30.14	R	Tr	120	3740	32x6	32x6D
Indiana 120	2	1990	Con 30 B	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	35	U	4	Tim 54003 H	Sp	—	4	Tr	156	5200	32x6	32x6D
Indiana 140	2	2495	Con 30 B	6	4 x4⅛	38.4	Pb	Str	P	Aut	Br-L	35	U	4	Wis 4916 L	2R	—	4V	Tr	156	5500	32x6	32x6D
Indiana 115 A	2½	2740	Her OXCP	4	4¼x5	28.9	Pb	Str	Vac	Eis	Br-L	35	U	4	Cla B 720	Sp	42.99	R	Tr	132	4970	32x6	34x7D
Indiana 615 A	2½	3070	Wis Y	6	3⅜x5	27.34	Pb	Str	Vac	Eis	Br-L	35	U	4	Cla B 720	Sp	46.29	R	Tr	136	5160	32x6	34x7D
Indiana 126	3	3780	Her L	4	4½x3¾	32.4	Pb	Str	Vac	Eis	Br-L	55-7	C	7	Tim 65704 S P	Wo	80.7	R	J	162½	7400	36x5S	36x10S
Indiana 626	3	4185	Wis H	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L	55-7	C	7	Tim 65704 S P	Wo	73.6	R	J	168½	7625	36x5S	36x10S
Indiana 627	3	3725	Wis H	6	4 x5	38.40	Pb	Str	Vac	Aut	Br-L	55-4	U	4	Cla B 720	Sp	42.8	R	D	168¾	6500	32x6	38x9
Indiana 127 AW	3	3775	Her K	4	4¼x5	28.90	Pb	Str	Vac	Eis	Br-L	51-5	U	5	Wis 1228	2R	41.72	RV	D	158¼	7000	34x7	34x7D
Indiana 627 AW	3	4075	Wis H	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L	51-5	U	5	Wis 1228	2R	41.72	RV	D	156¼	7200	34x7	34x7D
Indiana 638	4	4955	Wis H	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L	60-7	C	7	Tim 66700 S P	Wo	83.1	R	J	174¼	8100	36x5S	36x12S
Indiana 290	7	7250	Con 36 B	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L	70-7	C	7	Tim 68703 E	Wo	—	4W	D	182	10750	38x7	40x14S
Indiana 640	10	9700	Con 36 B	6	4¾x5¾	54.15	Pb	Str	P	L-N	Br-L	70-7	C	7	Tim 6 Wh	Wo	—	4RW	D	212	14000	38x7	36x10S
International AW-1	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	MM	V	3	Eat 517	Sp	17.4	4	2	136	2620	5.25x20	5.25x20
Int. Harvester Sp. Del.	¾	720	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 502 R	Sp	15.1	4	2	124	2200	30x5.25	30x5.25
Int. Harv. 6 Spd. Spec.	1	820	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	DR	Mec	U	3	Eat 1124	Sp	*52.6	4	2	124	2430	30x5	30x5
Int. Harvester S-24	1¼	1160	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3200	30x5	30x5
Int. Harvester S-26	1¼	1310	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1002	Sp	21.3	4	2	130	3250	30x5	30x5
Int. Harvester SF-34	1½	1450	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	*140	3520	30x5	32x6
International AL-3	1½	1450	Lyc SLH	6	3¼x4½	25.3	Pb	Zen	Vac	DR	W-G	V	4	Eat 1518	Sp	42.9	4	2	138	4300	6.00x20	6.00x20D
Int. Harvester SF-36	1½	1660	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	3	Eat 1502	Sp	22.6	4	2	*140	3570	30x5	32x6
Int. Harvester SD-44	2	1590	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3700	30x5	32x6
Int. Harvester SD-46	2	1740	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	AB	Own	U	4	Eat 2002	Sp	40.6	4	2	117	3750	30x5	32x6
Int. Harvester SF-46	2	1950	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	DR	Own	U	4	Eat 2002	Sp	40.6	4	2	*140	4000	32x6	32x6D
Int. Harvester A-4	2	1985	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Eat 1712	Sp	47.8	4	2	*145	5070	32x6	32x6D
Int. Harvester A-5	3	2550	Own-FBB	6	3⅝x4½	31.5	Pb	Zen	Vac	DR	Own	U	5	Eat 2112	Sp	52.6	4	2	*156	5606	34x7	34x7D
Int. Harvester HS-54	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Eat 54	2R	60.5	4	4	*148	8000	36x5S	36x8S
Int. Harvester HS-54-C	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Own A M 428	Ch	63.8	4	4	*148	8665	36x5S	36x10S
Int. Harvester W-1	2½	3850	Hall-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	RB	Own	U	5	Eat 58	2R	60.5	4	2	*148	8300	36x5S	36x8S
Int. Harvester HS-74	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Eat 74	2R	70.5	4	4	*160	10700	36x5S	40x12S
Int. Harvester HS-74-C	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	79.1	4	4	*160	11000	36x6S	40x12S
Int. Harvester W-3	3½	4850	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Eat 78	2R	70.5	4	2	*160	10125	36x6S	40x12S
Int. Harv's'r HS-104-C	5	5500	Hall-S 152	4	4¾x5½	36.1	Pb	Zen	Vac	RB	Own	U	5	Own A M 427	Ch	90.5	4	4	*160	11095	36x6S	40x14S
La France-Repub. A-1	*6000	990	Lyc	6	2⅞x4¾	19.8	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	36.1	4	Tr	132	3000	5.50x20	32x6
La France-Repub. C-1	*7000	1295	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.1	4	Tr	144	3300	6.00x20	32x6
La France-Repub. D-1	*9000	1595	Lyc	6	3¼x4½	25.4	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	37.9	4	Tr	144	3725	30x5	30x5D
La France-Repub. F-2	*13000	2395	Lyc	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Ful	U	4	Tim	Sp	40.1	4	D	174	5870	32x6	32x6D
La France-Repub. H-1	*15000	2985	Lyc	6	3⅞x5	36.0	Pb	Zen	Vac	Aut	Ful	U	4	Eat	Sp	36.0	4	D	163	5850	34x7	34x7D
La France-Repub. L-1	*18000	3595	Lyc	6	3⅞x5	36.0	Pb	Zen	Vac	Aut	Ful	U	4	Eat	2R	48.0	4	D	180	6900	36x8	36x8D
La France-Repub. M-1	*20000	3800	Wak	6	4 x4¾	38.4	Pb	Zen	Vac	Aut	Ful	U	5	Eat	2R	62.3	R	D	171	6900	36x8	36x8D
Mack AB	2½-3	3950	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	2R	Opt	R	D	2-Opt	——	36x4S	36x8S
††Mack BJ	3½-5	6150	Own	6	4½x5½	48.6	Pb	Str	Vac	NE	Own	C	4	Own	2R	Opt	4	D	3-Opt	——	36x8	36x8D
††Mack AK	3½-5	5150	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4	J	3-Opt	——	36x5S	36x5DS
††Mack AK	3½-5	5250	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	C	4	Own	2R	Opt	4	D	3-Opt	——	36x5S	36x5DS
† Mack AC	3½-5	4950	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x5S	40x10S
††Mack AC	5½-7	5500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x6S	40x12S
††Mack AC	7½	6000	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	J	R	3-Opt	——	36x7S	40x14S
††Mack AP	7½	9500	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	R	J	191	——	36x7S	40x8DS
Mack BL	1	2500	Own	6	3¼x5	25.39	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	148	——	B6.00x20	DB6.00x20
††Mack BG	1½	3000	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Sp	Opt	4	D	138-156	——	32x6	D32x6
††Mack AB	2½-3	3500	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	Ch	Opt	R	D	2-Opt	——	36x4S	36x8S
Mack AB	2½-3	4750	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	2R	Opt	R	D	2-Opt	——	34x7	D34x7
††Mack AB	2½-3	4300	Own	6	3⅝x5	31.57	Pw	Str	Vac	NE	Own	U	4	Own	Ch	Opt	R	D	2-Opt	——	34x7	D34x7
††Mack BC	3½-4	5250	Own	6	4 x5½	38.4	Pb	Str	Vac	NE	Own	U	4	Own	2R	Opt	4	D	2-Opt	——	34x7	D36x8
††Mack BC	3½-4	4250	Own	4	4¼x5	28.9	Pb	Str	Gra	RB	Own	U	4	Own	2R	Opt	4	D	2-Opt	——	36x5S	36x5DS
Mack AC 6-wheel	10	7500	Own	4	5 x6	40.0	Pb	Str	Gra	RB	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	——	36x7S	40x12S
Mack AP 6-wheel	10	12000	Own	6	5 x6	60.0	Pb	Str	Gra	NE	Own	J	4	Own	Ch	Opt	4R	J	3-Opt	——	36x7	40x12S
Paige	¾	860	Own	6	3¼x4½	25.35	Pb	DL	P	DR	W-G	U	3	Sal	Sp	17.36	4	Tr	115	2465	B5.50x19	B5.50x19
Relay Series 15	¾	1370	Con 17 E	6	3⅜x4	27.3	Pb	Str	Vac	Aut	W-G	U	4	Own	R	38.4			131	3750	30x5P	30x5P
Relay Series 15	1	1410	Con 17 E	6	3⅜x4	27.3	Pb	Str	Vac	Aut	W-G	U	4	Own	R	38.4			139	3800	30x5P	30x5P
Relay Series S 11	1	1700	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	25.7	4	D	142	4050	30x5	30x5
Relay Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	25.7	4	D	162	4500	30x5	D30x5

Major Specifications and Mechanical Details of 1930 Commercial Cars Built in the United States

Make and Model	Capacity—Tons	Chassis Price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gear Set	Location	No. Spds. For.	Rear Axle	Final Drive	Reduction in Low	Brakes, Foot	Brakes, Hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Relay Series 40	1½	2990	Bud D S 6	6	3⅜x5	31.2	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5300	34x5	D34x5
Relay Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	30.0	4	D	162	4700	32x6	D32x6
Relay Series 40	2	3240	Bud D S 6	6	3⅜x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5500	36x6	D36x6
Relay Series 50	2	3860	Bud D W 6	6	3¾x5	33.7	PC	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	6800	36x6	D36x6
Relay Series 40	2½	3240	Bud D S 6	6	3⅜x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Own	R	34.5	4	D	168	5700	36x6	D36x6
Relay Series 50	2½	3950	Bud D W 6	6	3¾x5	33.7	PC	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7000	36x6	D38x7
Relay Series 60	2½	4530	Bud B A 6	6	4 x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7350	36x6	D36x6
Relay Series 50	3	4130	Bud D W 6	6	3¾x5	33.7	PC	Zen	Vac	Aut	Br-L	U	5	Own	R	58.5	4	D	161	7200	36x6	D40x8
Relay Series 60	3	4595	Bud B A 6	6	4 x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7500	36x6	D38x7
Relay Series 80	3	5250	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	U	8	Own	R	84.18	4	D	175	8400	36x6	S40x10
Relay Series 60	3½	4745	Bud B A 6	6	4 x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	175	7800	38x7	D40x8
Relay Series 80	3½	5330	Bud B A	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8600	36x6	S40x12
Relay Series 80	4	5380	Bud B A	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Cov	C	8	Own	R	84.18	4	D	175	8800	38x7	S40x14
Relay Series 100	5	6615	Con 21 R	6	4⅜x4¾	45.9	PC	Str	Vac	Aut	Ful	U	5	Own	R	63.7	4	D	230	10000	9.00x24	D9.75x24
Reo 15 Junior	½	785	Con 16 E	6	3⅛x4	27.3	Pb	Sch	P	DR	W-G	U	3	Sal	Sp	14.63	4	Tr	115	2290	6.00x18	6.00x18
Reo D A	1	995	Con 16 E	6	3⅛x4	27.3	Pb	Sch	Vac	DR	W-G	U	3	Own	Sp	18.4	4	Tr	123	2755	30x5	30x5
Reo D F	1	1095	Own C B	6	3⅜x5	27.3	Pb	Sch	P	DR	Own	U	3	Own	Sp	17.1	4	Tr	135	3200	6.00x20	32x6
Reo F A	1½	1295	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	22.96	4	Tr	137	3525	32x6	32x6
Reo F E	1½	1395	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	22.96	4	Tr	152	3700	32x6	32x6
Reo F H	2	1595	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.6	4	Tr	142	4165	32x6	32x6D
Reo F C	2	1645	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	152	4025	32x6	32x6D
Reo F D	2	1745	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	37.62	4	Tr	168	4075	32x6	32x6D
Reo G A	3	2035	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	163	4625	32x6	32x6D
Reo G C	3	2140	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	41.05	4	Tr	179	4850	32x6	32x6D
Reo G D	3	1985	Own	6	3⅜x5	27.3	Pb	Sch	Vac	DR	Own	U	4	Own	Sp	46.2	4	Tr	144	4570	32x6	32x6D
Rugby ½ T	½	655	Con	6	3¼x4	25.4	Pb	Str	AC	Aut	Own	U	3	Own	Sp	15.6	4	4	—	2160	29x5	29x5
Rugby 6-15	1	865	Con	6	3¼x4	25.4	Pb	Str	AC	Aut	Br-L	U	4	Sal	Sp	34.49	4	Tr	135	2900	20x5.50	32x6
Selden 7 C	1	1098	Con	6	2⅜x4¾	19.84	Pb	Zen	Vac	Aut	BB	U	3	Tim	Sp	—	4	D	124	3600	30x5	30x5
Selden 17 C	1½	1500	Con	6	3⅛x4	27.3	Pb	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 317 C	1½	3900	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	142	3900	32x6	32x6
Selden 37 C	2	1935	Con	6	3⅜x4⅝	27.34	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	151	4800	32x6	32x6D
Selden 39 C	2½	2920	Con	6	4 x4⅛	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	164	5800	32x6	32x6D
Selden 47 C B	3½	3785	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	4	Tim	Sp	—	4	D	171	7200	34x7	34x7D
Selden 47 C D	4	4435	Con	6	4 x4½	38.4	Pb	Str	Vac	Aut	Br-L	U	5	Wis	2R	—	4	D	171	7600	36x8	36x8D
Selden 67 C	5	4975	Con	6	4⅜x4¾	45.94	Pb	Str	Vac	Aut	Br-L	U	7	Wis	2R	—	4	D	171	8700	36x8	36x8D
Selden 77	7	7365	Con	6	4¾x5¾	54.15	Pb	Str	Vac	Aut	Br-L	U	7	Wis	2R	—	4	D	178	12000	36x7	40x7D
Service Series S 11	1	1600	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Col	Sp	25.5	4	D	142	3900	30x5	30x5
Service Series S 11	1½	1900	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4300	30x5	D30x5
Service Series 40	1½	2990	Bud D S 6	6	3⅜x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4700	34x5	D34x5
Service Series S 11	2	2030	Bud H S 6	6	3⅜x4½	27.3	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Sp	29.2	4	D	162	4500	32x6	D32x6
Service Series 40	2	3240	Bud D S 6	6	3⅜x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	4900	36x6	D36x6
Service Series 40	2½	3240	Bud D S 6	6	3⅜x5	31.5	PC	Zen	Vac	Aut	Br-L	U	4	Tim	Wo	34.8	4	D	168	5100	36x6	D36x6
Service Series 60	2½	4580	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7000	36x6	36x6
Service Series 60	3	4680	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Ful	U	5	Tim	Wo	68.6	4	D	175	7100	36x6	D38x7
Service Series 80	3½	5250	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8200	S36x6	S36x12
Service Series 80	4	5330	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	8400	S36x6	S36x14
Service Series 100	5	5830	Bud B A 6	6	4⅛x5⅛	40.8	PC	Zen	Vac	Aut	Br-L	C	7	Tim	Wo	98.2	4	D	175	9600	S36x6	S40x14
Stewart 30	1	695	Lyc AFE	4	3¾x4½	22.5	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	—	4	D	130	2905	6.50x20	6.50x20
Stewart 30 X	1	795	Lyc WRG	6	2⅞x4½	19.8	Pb	Str	Vac	DR	W-G	U	4	Sal	Sp	—	4	D	130	2965	6.50x20	6.50x20
*Stewart 34 X	1½	1195	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	W-G	U	4	Cla	Sp	24.0	4	D	145	3526	6.50x20	6.50x20
Stewart 40	1½	895	Lyc AFE	4	3¾x4½	22.5	P	Str	Vac	DR	W-G	U	4	Cla	Sp	—	4	D	130	3215	6.50x20	6.50x20D
Stewart 28 X	1¾	1495	Lyc 4 SL	6	3¼x4½	25.3	Pb	Str	Vac	DR	Ful	U	4	Cla	Sp	27.3	4	D	136	3840	6.50x20	6.50x20
Stewart 29 XS	2	1695	Lyc ASA	6	3⅛x4½	25.3	Pb	Str	P	DR	Ful	U	4	Cla	Sp	27.3	4	D	145	4188	32x6	32x6D
Stewart 26 XW	2	2290	Lyc TF	6	3⅜x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	29.0	4	D	165	5095	32x6	32x6D
*Stewart 18 X	2½	2690	Lyc TF	6	3⅜x5	31.5	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	29.0	4	D	165	5788	32x6	32x6D
Stewart 32 X	2½	1990	Lyc ASA	6	3⅝x4¾	31.54	Pw	Str	Vac	DR	Ful	U	4	Cla	Sp	7.25:1	4	D	165	5100	32x6	32x6D
Stewart 33 X	3	3290	Lyc TS	6	3⅞x5	36.2	Pw	Str	Vac	DR	Ful	U	4	Tim	Wo	7.25:1	4	D	165	6450	34x7	34x7D
Stewart 19 X	3½	3690	Lyc TS	6	3¾x5	36.2	Pw	Str	Vac	DR	Ful	C	12	Tim	Wo	105.1	4	D	165	6990	36x5	36x10
Stewart 31 X	5	4990	Wak 6 RSL	6	4⅜x5⅛	45.9	Pw	Str	Vac	DR	Ful	C	8	Tim	Wo	10.5:1	4	D	165	8400	36x6S	36x6SD
Stewart 27 X	6-7	5700	Wak 6 RSL	6	4⅜x5⅛	45.99	Pw	Str	Vac	DR	Ful	U	8	Tim	Wo	93.81	4	D	165	9927	36x7	40x7D
Studebaker GN-P	¾	845	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	15.15	4	4	115	2465	6.00x19	6.00x19
Studebaker GN-S	1	1045	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	130	2990	6.00x20	30x5
Studebaker GK-N	1	1095	Own	6	3⅜x4⅝	27.3	Pb	Str	P	DR	Own	U	3	Own	Sp	13.8	4	D	146	3000	30x5	30x5
Studebaker GN-N	*4000	1245	Own	6	3⅜x4⅛	27.3	Pb	Str	P	DR	Cla	U	4	Cla	Sp	33.5	4	D	146	3265	30x5	32x6
Studebaker 77	*12500	2895	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	158	5030	7.00x20	7.00x20D
Studebaker 88	*12500	3295	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5200	7.50x20	7.50x20D
Studebaker 99	*14000	3795	Own	8	3½x4⅜	39.2	Pb	Str	P	DR	Ful	U	4	Eat	Sp	24.6	4V	D	184	5680	7.50x20	7.50x20D
Whippet 96 A	½	360	Own 96 A	4	3⅛x4¾	15.6	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	14.74	4	R	103¼	1691	4.75x19	4.75x19
†White 15 B	1	1545	Own GKA	4	3¾x5⅛	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	Sp	18.6	R	R	133½	3242	30x5	30x5
†White 57	1¼	2725	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	L-N	Own	U	4	Own	Sp	19.3	R	R	146	3755	32x6	32x6
†White 20 A	1½	2125	Own GKA	4	3¾x5⅛	22.5	CS	Zen	Vac	L-N	Own	C	4	Own	Sp	32.1	R	R	145½	4412	34x5	34x5D
†White 56	2	3125	Own GRC	4	4 x5¾	25.6	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	26.2	R	D	165	5096	36x4S	36x7S
†White 51 A	2½	3750	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	35.5	R	D	170	6256	36x5S	36x8S
†White 55	3½	4650	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	66.1	D	R	174	8512	36x5S	40x5SD
†White 52 T	3½	4700	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	76.5	D	R	129½	8236	36x5S	40x5SD
†White 52	5	5100	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	5	Own	IG	92.3	D	R	174	9184	36x6S	40x12S
††White 58	3	4400	Own GRB	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	IG	49.7	4	R	180	7535	36x5S	36x5SD
†White 60	1	1850	Own 2 A	6	3½x4½	29.4	Pw	Zen	Vac	DR	Own	U	3	Own	Sp	17.9	4	D	138	3562	30x5	30x5
†White 61	1½	2450	Own 2 A	6	3½x4½	29.4	Pw	Zen	Vac	DR	Own	U	4	Own	Sp	23.4	4	D	148	4612	30x5	30x5D
†White 59 A	7½	6000	Own 3 A	6	4 x5¼	38.4	Pw	Zen	P	L-N	Own	U	4	Own	Sp	66.5	D	R	155⅛	—	40x8	40x14S
Willys-Knight 87	—	825	Own	6	2⅛x4⅜	20.7	Pb	Til	Vac	Aut L	Own	U	3	Own	Sp	16.10	—	—	112½	—	5.50x29	5.50x29
Willys-Knight T-103	1½	825	Own KGT	6	2⅛x4⅜	20.7	Pb	Til	Vac	Aut	Cov	U	4	Cla	Sp	42.33	4	B	131	2808	5.50x20	30x5
Willys Six 98 B	½	525	Own 98 B	6	3¼x3⅞	25.35	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	14.28	4	B	110	1903	5.00x19	5.00x19
Willys Six C-101	1½	695	Own 98 B	6	3¼x3⅞	25.35	Pb	Til	Vac	Aut	Cov	U	4	Cla	Sp	36.12	4	B	131	2675	5.50x20	5.50x20

GENERAL NOTATIONS

*†REFERENCE MARKS apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

CAPACITIES given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

WHEEL BASES given are standard, but optional wheel bases are available in many cases.

ENGINE—Bud, Buda; Con., Continental; Her, Hercules; Kgt, Knight; Lyc, Lycoming; Wak Waukesha; Wis, Wisconsin. Hall, American Car & Foundry.

LUBRICATION—Pb, pressure lubrication to main and connecting rod bearings; Pw, full pressure lubrication to all bearings, including wrist-pins; CS, circulating splash; Sp, Splash.

CARBURETOR—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

FUEL FEED—Gra, Gravity; Vac, Vacuum tank; P, Fuel pump.

IGNITION — AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Loece-Neville; N-E, North East; RB, Robert Bosch; D R, Delco-Remy; Mag, Magneto.

TRANSMISSION—Br. L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cotta, Cotta Gear Co.

LOCATION—C, Center, amid; U, in unit with engine.

REAR AXLE—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Sal, Salisbury; Tim, Timken, Wis, Wisconsin.

FINAL DRIVE—IG, Internal gear; St, Straight bevel; Sp, Spiral bevel; Wo, Worm; 2R, Double reduction; Ch, Chain; Relay, Relay drive.

BRAKES—J, Jack shaft; R, Rear wheels; D, Drive shaft; 4, four-wheel; Tr, Transmission; V, Vacuum booster; W, Westinghouse air brake. B, Both front and rear wheels.

TIRES—B, Balloon; D, Dual; S, Solid.

SPECIAL NOTATIONS

AMERICAN-LA FRANCE

*Chief model also available as 2½-ton model, 14x7 tire, dual rear, weight 6,400. Price $3,900.

Chieftain model also available as Dump Truck, 160-inch wheel base.

Balloon tires optional on Chief, Chieftain and Big Chief models.

AUTOCAR

*Engines in these models are located under the driver's seat.

DAY-ELDER

Models GF and HF also available in 186-inch wheel base.

Model JF also available in the following wheel bases: 165, 180 and 204 inches.

Model KF also available in 202-inch wheel base and tractor 149.

DURANT LINE

*Price includes panel body.

GENERAL MOTORS TRUCK LINE

*Capacity indicated for each chassis is the recommended gross weight without exceeding rated capacity of tires. The tire size does not affect the straight rating for which chassis is guaranteed and each model is designed to operate satisfactorily under average conditions with loads giving a total gross weight (chassis, body, equipment and payload) equal to straight rating given below. The additional standard wheel base lengths, the number of additional tire types (tire combinations—each type carrying a recommended gross weight) and the ton range on a nominal payload basis for each model is given below.

Model	Straight Rating	Additional Wh. Bases, ins.	Addit'l Tire Types	Pay'd Range
T-11	3000	None	None	½
T-15	5400	141	2	¾
T-17	6500	141	6	¾-1¼
T-19	8500	141, 152	16	1-2
T-25	8500	141, 152	11	1-1¾
T-30	11000	152, 164	12	1½-2½
T-42	14000	152, 164, 181	10	2-3½
T-44	15000	152, 164, 181	10	2-4
T-50	18500	166¾, 184½, 200¼	16	2½-4½
T-82	22000	167½, 185¼, 201	10	3-6
T-93	28000	201, 220	5	5-7½

Optional rear axle ratios are available for all models.

F. W. D.

*Indicates six-wheel model. Special power take-off transmission, which provides 3 power take offs which may be operated in any transmission speed, optional on all models.

GRAMM

*Models B, C, D and E are furnished in three wheel base lengths—others on request.

*Models GY and GYB also available in 190-inch wheel base.

*Models HY and HYB also available in 210-inch wheel base.

Tire sizes and electrical equipment optional, depending upon type of service —coach or van.

*Model O Series, Large engine, pneumatic tires, special wheel bases optional at extra cost.

*Model T Series, Large engine, pneumatic tires, special wheel bases and 3 speed transmission optional at extra cost.

MACK LINE

Other wheel bases furnished on all truck models.

On 6-wheel jobs, 4 rear wheels driven by chains, foot brake on 4 rear wheels.

HYP.—Hypoid drive, single reduction.

††Made also in tractor models.

REO LINE

RD2, at $5,450 on 180-inch wheel base.

*Tonner in wheel base, 123, 138; 1½-ton in wheel base, 137, 156, 152; 2-ton in wheel base, 152, 168; 3-ton in wheel base, 168, 179, 184.

RUGBY

F—Chassis weight includes body.

STEWART LINE

Model 30 and 30X can also be supplied in 120 and 140-inch wheel base.

Model 40 can also be supplied in 140 and 160-inch wheel base.

*Model 34X can be supplied in 145, 160 and 176-inch wheel base.

Model 28X can be supplied in 145, 160 and 176-inch wheel base.

Model 29XS can be supplied in 160 and 176-inch wheel base.

*Model 26XW can be supplied in 148, 176 and 190-inch wheel base.

*Models 18X, 32X and 33X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27X can be supplied in 148, 172, 190, 220 and 255-inch wheel base.

STUDEBAKER LINE

*Capacity Model GN-N is 4,000 lbs. for body, cab, driver and payload.

Maximum gross load, chassis, body and payload for Models 77 and 88 is 12,500 lbs. and for Model 99 is 14,000 lbs.

‡Hand brake same as foot brake, standard. Hand brake on drive shaft, special equipment.

OVERLAND DEALER BUILDS UP SERVICE SALES EFFICIENTLY

By K. H. LANSING

BUILDING service sales is a prominent feature of the Overland-Knight Sales Company, the oldest Whippet-Willys-Knight dealership in Philadelphia, conducted by Edward G. Richmond, at the confluence of Broad Street, Roosevelt Boulevard and Hunting Park Avenue, all important traffic arteries. The dealer has his staff of six salesmen concentrate largely on the northeastern portion of the city, in which the sales and service building is located, although the entire area, exclusive of South Philadelphia, is covered.

So well is service brought forward in the agency's transactions that an average of at least seventy-five repair jobs a week are performed in the shop, while not infrequently there will be a period of successive months when the number of jobs attain a considerably higher figure. For example, for the last three months the range of repair jobs a week has several times reached 100.

Here are the main points used in building up the service sales:

First of all, there is provided a roomy and well-lighted repair shop on the second floor, which is reached by ramp from the rear, and this shop is equipped with all the facilities needed for first-class work. These include an arbor press, electric hones, portable electric drills and many hand tools for bench work, some of which have been specially designed for short-cut operations. The department will easily contain thirty large cars at one time and the working spaces are all blocked out in order, thus preventing work from becoming mixed, improving accessibility by keeping aisles clear and having the cars in work lined up in a systematic manner.

There is a quick service department in the rear of the main floor, where minor repairs and adjustments are attended to speedily while owners or chauffeurs wait.

The dealer consistently hires only the best mechanics obtainable, selecting for its repair work either men who have been service managers or shop foremen with other agencies, or else "crack" mechanics, all placed under an exceptional shop foreman and answerable to the service manger. At present, for example, the company has in its shop, doing bench work, four ex-service managers, or ex-foremen, while the other eight come under the classification of "crack" mechanics of established reputation, these forming the total of twelve shopmen.

* * *

NATURALLY, these men have to be paid particularly well. They are on an hourly basis, and average for their labor 85 cents an hour. The company frowns on a piece-work basis, believing better reults are obtained on the hourly plan. Testing is done by a factory expert. The workmen are permitted to concentrate their efforts upon real mechanical work. No paint, body, or metal work, save removing dents from fenders, is done in the shop. Work like repairing smashed rear panels and similar operations is done in an outside establishment.

Shop operations are done at flat rates for the customer, and occasionally, when the work has slowed up, as it sometimes will for a brief period, attractive offers of combination servicing jobs at a special price are extended to patrons and prospects. The same thing may be done as the season is about to change. In this way, the shop force is always kept intact the year around and no men are let out during a dull period, or one that normally would be dull without such special effort.

The repair shop and servicing operations are well advertised, and one of the best talking points in this regard is found in the fact that in this shop the same products have been serviced for a longer period than in the shop of any other Overland - Willys - Knight-Whippet agency in the city. When a car is rebuilt for a customer the agency gives him the same warranty as in the case of a new car—the standard one of ninety days on parts and thirty days on labor. A service salesman is provided to greet customers desiring service or repair jobs, make timely suggestions and, of course, sell the service.

Direct mail is important in helping to build up service sales. Every six weeks, in routine, and oftener should a changing season break into the period, a reminder in the form of either a multigraphed letter, or a postcard, is mailed to the car owner, usually emphasizing some special feature.

Here is a sample letter, signed by the service manager, that was sent to car owners just before the present spring season opened:

To all Whippet and Willys-Knight owners:

Henry David Thoreau, sage of Walden, once wrote:

"To lose a friend is to die a bit."

No philosopher, dreamer, or practical business man ever made a truer statement. We have been thinking of this and it seems a long time since your last visit, for even a few short months really seem long when a firm regards all who visit it as friends.

We feel that our success has been obtained, very largely, from the loyal support of our owners, and it has been our object at all times to show all patrons every courtesy and consideration, bending our energies in an effort to render a very satisfactory service. This policy has earned for us the confidence of many customers, which we now enjoy; but should we fail to properly live up to our obligations to you, as an owner, we would indeed thank you for any criticisms or suggestions that you have to make.

Permit us to advise you that spring is just around the corner, when the touring season will open. Are you prepared? Allow us to urge you to have your car looked over at once, as the longing to get away will hit you and hit you hard the first balmy day.

Of course, this should be done at regular intervals and the man whose car is periodically inspected and adjusted is the "Wise Guy," for the reason that he is not often the recipient of those terrible bills, that are, no doubt, a sort of wear and tear on one's disposition.

If your car does not need anything, we will gladly tell you so; but for your information, all jobs are estimated and prices given when the car is brought in. This practice assures a mutual understanding, avoiding dissatisfaction.

We want you to be advised, too, that our shop is not run on a piece-work basis and that our system of testing by factory expert is of the highest efficiency, assuring every car a thorough test. It would be most gratifying to us to wait upon you in the near future.

Thanking you for past patronage and soliciting the continuance of same in the future, we remain

Very sincerely yours,
OVERLAND-KNIGHT SALES CO.
JOHN C. HOPKINS,
Service Manager.

* * *

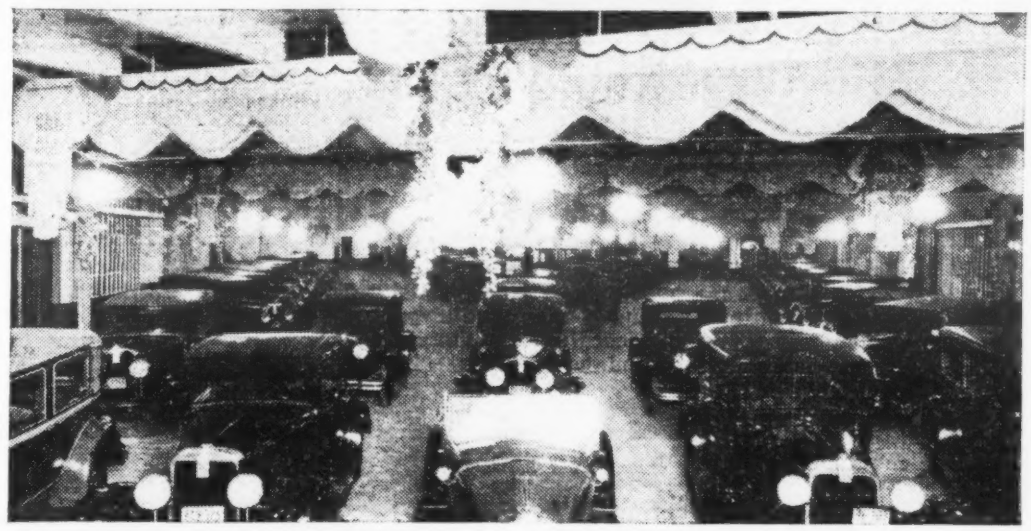
LETTERS like these produce very good results. It will be noticed that the appeal is from the viewpoint of the customer's regard for his car and its proper condition, while bits of information, such as the method by which the shop is conducted, gain his confidence.

Of course, after the sale of a new car, the salesman, in calling on the customer in time, also solicits for the service, or repair department.

The company advertises used cars almost daily in the classified section of the local newspapers and it has a small display advertisement, as well as regular line space in the telephone directories. The used car manager is extremely careful in not permitting to be taken in exchange a customer's car that cannot readily be resold at a profit when put in condition.

The service department is permitted to sell cars under the proviso of making the proper division of the commission with the salesman covering the territory in the city from which the customer comes, provided that customer is on the salesman's list of calls. While not many sales are made through this channel, the selling incentive is provided for the service department. The company has always been in the district where it now works intensively. For the last three years it has been in its present location and prior to that was at Broad and Belfield streets, not far removed.

Here's Detroit's Newest Used Car Show



THE LARGEST USED CAR STORE in Detroit and one of the largest in the world recently was opened at 8600 Grand River Ave. by the Detroit retail branch of the Oakland Motor Car Company. Shaped like a blunt flatiron, the structure provides 18,745 square feet of floor space, ample room for the uncrowded display of 100 cars. The building is of brick, steel and concrete construction. Several wall sections may be rolled back, leaving the entire front accessible from the street

SALESMEN TRAINED TO PLEASE WOMEN DRIVERS

San Francisco, Cal., June 19 (UTPS).—A. D. Plughoff, vice-president and general manager of J. W. Leavitt & Co., distributor of Willys-Overland lines, believes that "the eyes have it" when it comes to selling cars to the fairer sex. "The woman driver looks to the beauty of design, the attractive lines of the body, the artistic color combinations, the luxury of the interior finish." Leavitt salesmen are trained to gently refer to these points when the prospect is a woman or where, though hubby is along, it is evident that the "better half" has the deciding vote. "The eyes have it." two days. Cars were grouped in

HUDSON DEALER HOLDS "2-FOR-PRICE-OF-1" SALE

Evansville, Ind., June 19.—Two for the price of one—a method of winning sales appeal successfully featured by enterprising dealers in several lines of merchandising—may be turned to good account in the development of the two-car family. It was an inspiration to Garland Stephens, retail sales manager of the Wabash Valley Motor Company, Hudson-Essex distributor and dealer, for the movement of some of his used car stock recently.

"Another for a dollar"—proved sufficiently attractive allurement to prospective buyers as to make a total of twelve used car sales in three classes—$74—$99—$124. On payment of an additional dollar the buyer was at liberty to drive away another car of its respective class.

FRANKLIN NAMES SEELEY ADVERTISING CHIEF'S AID

Syracuse, N. Y., June 19.—C. W. Seeley has been appointed assistant advertising manager of the Franklin Automobile Company, effective June 1. He was employed in the Franklin advertising department as a publicity writer from 1919 to 1924, and for several years following was a member of the copy staff of Patterson-Andress Advertising Agency in New York city.

H. ST. JOHN OPENS FORD DEALERSHIP AT LEWISTON

Chehalis, Wash., June 19.—Harold St. John, who for the last few years has been associated with his father, A. C. St. John, in the operation of St. John Motors, Chehalis Ford dealer, and the St. John Air Service, has purchased the Ford dealership at Lewiston, Idaho. His territory also will include Clarkston, Wash., and adjacent country.

CHICAGO A. T. A. GIVES 'IMPRESSIONS' TO DEALERS

Chicago, June 19.—Under the heading of "C. A. T. A. Impressions," a recent issue of the Chicago Automobile Trade Association's semi-monthly news letter and bulletin says:

"Judging from the number of gas stations and their supplies, everybody wants to go some place sitting down.

"Not everyone who wants a car has one. The rub is to find the one who wants one, but hasn't any; put the two together and a sale is made.

"There are fifty-one million more tons of steel put in the manufacture of cars than the industry gets out of them in junk. We'll have to wreck many cars annually to make an impression.

"What's the difference between an orphan car and an obsolete car? Every dealer knows the answer, but it seems the public is not as familiar with the situation. Many cars are sold as obsolete models that would fit better into the orphan class.

"No one wants to be criticized; however, some thrive on it—some go under because of it; chiefly, because it hurts our ego.

"Not everyone in the motor car business knows what he is buying or selling; if he did, he wouldn't allow $500 for a car that, carefully reconditioned, will not bring over $300.

"Most of us are cowards. If we were not we wouldn't agree to let the public shove us into a corner, shake their fists in our faces and advise us that we will give as much for their old car as the other dealer or we won't get the deal. The trouble is, we believe the public."

26TH ANNUAL SALON DATES ANNOUNCED

New York, June 19.—Dates and locations for the twenty-sixth annual Automobile Salon have been announced. As has been the case for the past several seasons, there will be four stagings of this exhibition of high-priced chassis and custom coach work. Applications for exhibition space at this early date are somewhat in excess of any previous season.

The 1930-1931 season of the Automobile Salon will open on November 8, 1930, in the Hotel Drake, Chicago, and continue through the 15th. It will be repeated in the Hotel Commodore, New York, from November 30 to December 6, inclusive. The third staging will be in the Hotel Biltmore, Los Angeles, February 7 to 14, 1931; and the final one in the Palace Hotel, San Francisco, February 21 to 28, 1931.

JANESVILLE DEALER FINED FOR HOLDING AUCTION

Janesville, Wis., June 19.—Rather than disappoint customers and lose the benefit of several hundred dollars spent for advertising, David Williams, manager of the Rock County Buick Company here, held an auction of used cars as scheduled and then paid $15 fine for violation of an old city ordinance prohibiting auctions without a license and big fee. He had been warned in advance, and did not pay the maximum penalty. As a result of the arrest, the old law, originally aimed at sales of various articles by transient merchants, probably will be repealed soon.

Merchandising Stunt in Butler, Pa.

THIS IS THE WAY the Weeter-Seibert Motor Company of Butler, Pa., advertises the smoothness of the Studebaker Six. The plane was constructed by H. O. Weeter and his 13-year-old son in his home workshop. The car is driven about the streets of Butler at intervals, and on busy shopping days is parked near the center of the business district

Chevrolet Sales Exceed 1929 in New England, Mid-West and on Coast

Make Best Showing in Agricultural States, Where Gain Is 8.3%. Decline for Entire Country Only 3.7%

NEW YORK, June 19.—Popularity of the Chevrolet passenger car was more marked in the agricultural states of the Middle West than in any other section of the country in the first four months of 1930, according to a compilation of sales of this car during that period, as compared with the corresponding months of 1929.

Registrations of the Chevrolet in six Middle Western states in the aggregate amounted to 30,753 in the four months ended April 30, 1930 as compared with 28,402 in the similar 1929 period, a gain of 8.3 per cent. The sales of Chevrolet showed increases over last year in two other geograhical divisions — New England, where the gain was 3.4 per cent., and on the Pacific Coast where the registrations were up 1.9 per cent.

The biggest decline in any section was in the Great Lakes area, where Chevrolet registrations were 65,326 in the four months of this year, as compared with 73,261 a year ago, a falling off of 10.6 per cent. In the six states of the East, including New York, New Jersey, Pennsylvania, Maryland, West Virginia and Delaware, Chevrolet registrations were 47,644, as compared with 50,837 a year ago, a drop of 6.3 per cent. There was a decline of 4.7 per cent. in the Rocky Mountain tier of states and of 2.2 per cent. in the South.

For the entire country, Chevrolet registrations were 253,399 for the four months, as compared with 263,144 in the corresponding period of 1929, a decline of 3.7 per cent. This Chevrolet drop compares with a loss of 20.3 per cent. for the entire industry and with a gain of 4 per cent. by Ford.

In New England, Chevrolet made a gain despite the fact that Massachusetts and Connecticut, the two largest states in point of sales, only broke even with a year ago. The increase in the aggregate was due to gains in Rhode Island, Maine and New Hampshire, with Vermont showing a slight loss, the only decline among the six states.

With sales off in the more populous states of New York, New Jersey and Pennsylvania, and just breaking about even in West Virginia and Delaware, Maryland was the only state in the East to show a substantial increase.

The South, covering as it does a wide territory, presented a picture of contrasts in Chevrolet sales in the four months. Texas, the biggest state, reported a decline, while Missouri, the next in line, showed a gain. Virginia, Florida, Alabama, Mississippi and Arkansas reported larger sales, while Tennessee, Kentucky and Louisiana showed slight declines, and North Carolina, South Carolina and Georgia more substantial decreases.

Sharp declines in Ohio and Michigan accounted for most of the Chevrolet loss in the Great Lakes territory. Illinois set up a gain, while both Wisconsin and Minnesota were up also. Indiana sales were off.

Four out of the six agricultural states in the Middle West sold more Chevrolets this year than last. These states were Iowa, Oklahoma, Nebraska and South Dakota. The losses in Kansas and North Dakota were slight.

Chevrolet dealers in Colorado and Idaho were able to show better sales than a year ago, but the rest of the Rocky Mountain states were unable to make the grade. Declines were slight in all cases, however. Both California and Washington dealers set up gains on the Pacific Coast, but Oregon business was under a year ago.

Following are the Chevrolet registrations for the first four months of the year in the United States, divided among seven geographical divisions, as compared with the corresponding period of last year and with the percentage of change shown:

	1930	1929	% Change
New England	13,489	13,093	+ 3.4
East	47,644	50,837	— 6.3
South	68,432	70,019	— 2.2
Great Lakes	65,326	73,261	—10.6
Middle West	30,753	28,402	+ 8.3
Rocky Mts.	8,831	8,964	— 4.7
Pacific Coast	18,924	18,568	+ 1.9
Totals	253,399	263,144	— 3.7

Following are the Chevrolet registrations for the four months by states, arranged into geographical divisions and compared with a year ago:

	1930	1929	
NEW ENGLAND			
Massachusetts	7,061	7,033	
Connecticut	2,758	2,718	
Rhode Island	1,203	1,117	
Maine	1,072	973	
New Hampshire	855	691	
Vermont	540	561	
Totals	13,489	13,093	+ 3.4%
EAST			
New York	18,167	20,177	
Pennsylvania	14,521	15,691	
New Jersey	7,325	7,356	
Maryland	4,294	3,988	
West Virginia	2,719	2,798	
Delaware	637	627	
Totals	47,644	50,837	— 6.3%
SOUTH			
Texas	15,544	16,397	
Missouri	13,254	12,278	
Virginia	4,858	4,416	
Tennessee	4,629	4,737	
Kentucky	4,427	4,523	
Florida	3,742	3,544	
Alabama	3,344	3,178	
Georgia	3,200	3,631	
Mississippi	3,119	2,836	
North Carolina	3,032	5,345	
Louisiana	3,059	3,123	
Arkansas	2,400	2,122	
South Carolina	2,306	2,552	
Dist. of Col.	1,468	1,297	
Totals	68,432	70,019	— 2.2%
GREAT LAKES			
Illinois	15,911	14,917	
Ohio	14,526	19,049	
Michigan	12,646	18,717	
Indiana	7,908	9,450	
Minnesota	7,176	5,399	
Wisconsin	7,159	5,729	
Totals	65,326	73,261	—10.6%
MIDDLE WEST			
Iowa	9,643	7,516	
Oklahoma	7,310	6,957	
Nebraska	5,341	5,266	
Kansas	4,778	4,894	
South Dakota	2,213	2,059	
North Dakota	1,468	1,709	
Totals	30,753	28,402	+ 8.3%
ROCKY MOUNTAINS			
Colorado	2,929	2,564	
Montana	1,302	1,857	
Idaho	1,244	815	
Utah	1,023	1,111	
Arizona	946	1,113	
New Mexico	707	651	
Wyoming	473	457	
Nevada	207	256	
Totals	8,831	8,964	— 4.7%
PACIFIC COAST			
California	13,382	13,202	
Washington	3,275	2,943	
Oregon	2,267	2,418	
Totals	18,924	18,568	+ 1.9%

LOW RUBBER PRICES ENCOURAGE GREATER USAGE, SAY CHEMISTS

New York, June 19.—The total acreage now planted to rubber throughout the world is approximately 7,000,000, Dr. E. G. Holt of the United States Bureau of Foreign and Domestic Commerce says in a report to the American Chemical Society.

"During the last year," Dr. Holt points out, "less than 70 per cent. of the planted area was old enough to be tapped, and that if the same average production per acre should obtain six years hence as in 1929 the production of the present planted area, if it were all tapped, would amount to well over 1,200,000 tons in 1935.

"Consumption of rubber in the United States increased from about 375,000 tons in 1927 to 440,000 in 1928 and to 470,000 in 1929. World consumption increased from less than 600,000 tons in 1927 to about 790,000 tons in 1929.

"Manufacturers of automobiles are now demanding larger tires that will give the utmost in passenger comfort and durability. Low prices for rubber favor the development of new uses, and we can depend on inventive genius to make these more important as time passes.

"Low prices also encourage the carrying of larger stocks of rubber and also of finished goods by both the manufacturers and dealers, and the attainment of reasonable stability of prices might still further encourage this tendency."

RICHFIELD OIL BUYS ILION, N. Y., COMPANY

Ilion, N. Y., June 19.—One of the largest local business transactions in recent years was completed here yesterday, when the Triumph Oil and Gas Company of Ilion was purchased by the Richfield Oil Company of New York city

The business and property include a plant on West River Street, twelve filling stations throughout the Mohawk Valley and tank equipment and wagons. Harry J. Roach, who has been local manager for the Triumph Company, will be retained by the new owners as district manager. It was stated by Mr. Brennan, president of the Triumph company, that the new company will spend about $150,000 in Ilion alone. Three engineers have arrived here and are making plans for installation of storage tanks on the Barge Canal. The Ilion plant will serve a radius of forty miles.

PLAN 2,000 BARREL OIL REFINERY AT LOGAN, O.

Toledo, O., June 19.—Plans for a new 2,000 barrel daily capacity oil refinery to be located at Logan, O., will be made Saturday by members of the Southeastern Ohio Oil and Gas Producers Association at its meeting in Logan. Work on similar refineries at Marietta and Zanesville will probably be held back until the Logan refinery is in operation.

EGNER OF FRANKLIN DIES

Syracuse, N. Y., June 19.—Edwin G. Egner, consulting engineer of the H. H. Franklin Motor Manufacturing Company, died yesterday in the Rochester General Hospital, Rochester, following an operation.

More Money From Maintenance

¶ Three special issues of Automotive Daily News, ***June 24, 25 and 26,*** will feature methods of obtaining increased profits from maintenance sales.

¶ In addition to news of the day from all branches of the industry, there will be articles of interest to every service manager, every dealer, distributor, jobber and truck fleet owner in the country.

¶ These articles will show the newest and best equipment for lubricating cars and trucks, for washing, polishing and painting. The newest in shop equipment, parts and hand tools will be described and illustrated. Articles on new accessories and methods of merchandising them will appear.

¶ Manufacturers of shop equipment, parts, accessories, hand tools, lubricating equipment, lubricants, lacquer, etc., should benefit tremendously by an extra distribution of over 6,000 copies, each one reaching a prospective quantity buyer.

¶ There will be no increase in rates for the bonus distribution. Forms close two days preceding publication.

Automotive Daily News

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PACIFIC COAST
Blanchard, Nichols & Coleman
Am. Nat. Bank Building
San Francisco, Cal.